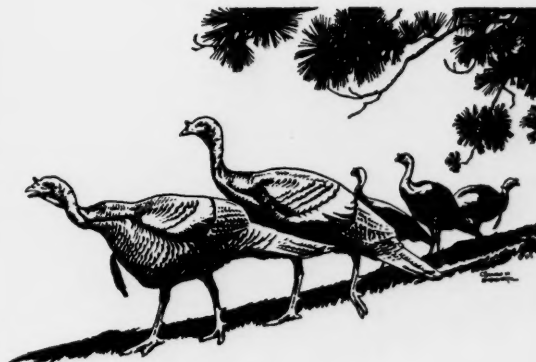


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A JOURNAL OF NATURE AND MAN **PACIFIC DISCOVERY** IN THE PACIFIC WORLD

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THERE could have been no more opportune time for *Pacific Discovery* to present Dan Lincoln Thrapp's article on California's tule elk, together with additional notes by our Conservation Editor, Dr. A. Starker Leopold, who is also a member of the Academy's Council. Moreover, both conservationists are on the Editorial Board of the Sierra Club.

PRE-DISCOVERY

Just now, the tule elk question is very much alive, again — as it was about 40 years ago with the Academy taking a lead part in the proceedings. With a bow to the California Department of Fish and Game, we quote from an article in the quarterly *California Fish and Game*, January 1934, "History of the Yosemite Elk Herd," by James Moffitt (late curator of birds and mammals in the Academy):

"In 1914, a group of California naturalists and sportsmen concerned themselves with the status of the California valley elk. At that time but a single herd estimated at 400 individuals existed on the Buttonwillow Ranch of Miller and Lux in Kern County. The danger of 'keeping all your eggs in one basket,' so to speak, was apparent, for if disease or some other factor exterminated this herd the species would become extinct. The late Dr. Barton Warren Evermann, then Director of the California Academy of Sciences, and M. Hall McAllister, present Chairman of this institution's Committee for the Conservation of Wild Animal Life, were the fathers of a movement to rectify this precarious condition. Briefly, a plan was adopted to catch and distribute to several favorable localities scattered over the State, a portion of the Kern County elk herd. This was accomplished in the years 1914 and 1915 with the cooperation of Miller and Lux, Inc., and the California Academy of Sciences. . . .

"These plantings constituted fulfillment of the academy's original program. M. Hall McAllister, co-leader in the venture with Dr. Evermann, however, always cherished the desire that a planting might also be made in Yosemite Valley. The first concrete move in this direction seems to have occurred on December 26, 1918, when McAllister and the late Stephen T. Mather, then Director of the National Park Service, lunched together in San Francisco, and McAllister broached the subject. Correspondence shows that McAllister, with characteristic energy, followed up this opening and in the next spring definite steps were taken in this regard. . . . Official sanction of the elk introduction into Yosemite was provided by the Director of the National Park Service on March 10, 1920, when an agreement was entered into between this body and the California Academy of Sciences which stipulated that the academy would bear all expenses of materials and cost of erection of a corral for the animals and would deliver to the Park Service at El Portal not to exceed 10 live elk." Construction and arrangements were completed too late for the transfer of elk that year, but it was done finally on May 23, 1921. Thus we have a glimpse of the Academy in the elk business — to the tune of something over \$2,000!

The elk story is brought up to date in Dan Lincoln Thrapp's article, "Return of the Outcast Elk." Mr. Thrapp is a Los Angeles newspaper man, conservationist, active in southern California Sierra Club affairs, and leader in various activities directed toward the improvement of the world we live in, on the plane of ethics. . . .

DISCOVERING PD'S AUTHORS

¶ Muriel L. Guberlet, who writes informedly on "The Ribbon Kelp," is a member of the English Department of the University of Washington and one-time student of marine biology when our Director, Dr. Robert C. Miller, was Professor of Zoölogy there. We regret that her friend Beth Curtis' sensitive drawings have lost some of their delicacy in reproduction. D.G.K.

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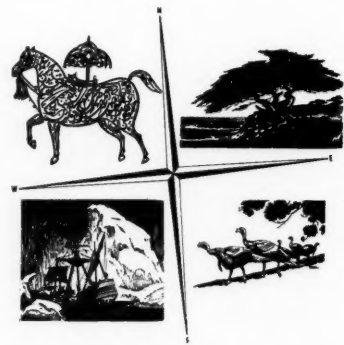
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THE
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EDITORIAL

IN AN EARLIER ISSUE of *Pacific Discovery* (January-February 1949), we wrote an editorial entitled "The Integrity of the Chinese." In that essay we attempted to show that, although Chinese ethics are different from ours, the Chinese do have definite moral standards to which they rigorously adhere.

This editorial was rather well received, both by Occidentals and by the Chinese themselves. An official of the United Nations was kind enough to tell us that his Chinese secretary had mailed the editorial to a relative in Hong Kong, with the request that it be circulated among the rest of the family. In a Chinese family this means a rather large mailing list, since nephews, uncles, and cousins are all included; in China the family tie is very strong. As regards this editorial, apparently East and West were agreed as to the ethics of the Chinese, and their adherence to those ethics.

Since we do not expect every reader of *Pacific Discovery* to thumb through his files and find the editorial referred to, we venture to quote from the concluding paragraph:

Loyalty to family, loyalty to friends, respect for the aged, graciousness in social relations, and faithful adherence to one's pledged word — these are the particular virtues the centuries have taught an ancient and wise race. Those westerners who have known the Chinese longest and best are the greatest admirers of the Chinese character.

Our recent dealings with Red China and North Korea have done nothing to bear this out, but have provided evidence entirely to the contrary. We do not suppose that the fundamental Chinese virtues have undergone change in two or three years. But insofar as Communism has been able to impose its will, Red China (with North Korea as its satellite) has become a nation of liars, crooks, and double-crossers. There is no graciousness in social relations, no respect for the aged, no respect for one's pledged word, and no respect for the truth.

They — and when we say they we realize it is a vague term, referring first to the North Koreans and then to their Red Chinese masters, and finally to whomever is issuing orders from the Kremlin — they have broadcast fantastic reports of germ warfare, which any biologist, medical man, or public health official knows to be patently untrue; they have extracted phony confessions from harassed American prisoners through a combination of mental and physical torture; they have used an armistice as a blind for building up their own strength; and there is substantial evidence that they have butchered hundreds if not thousands of prisoners in violation of all the rules of war.

This apparent abrupt change in the character of an entire nation is not without precedent. It happens anywhere and everywhere that Com-

The Integrity of Mankind

munist is able to extend its sway. Czechoslovakia was once one of the most enlightened nations of Europe, and a bastion of freedom; today it has fallen into darkness and the abyss. This does not mean that the character of the people has changed; it means that they have — through no fault of their own — become the slaves of a stronger and absolutely pitiless physical force.

The present debacle in China was not unforeseen by persons of wisdom and intelligence. In 1930 this writer spent part of the summer at the Marine Biological Laboratory of Amoy University. It followed more or less routinely that he should one day have tea with the President of the University, Lim Boon Keng. In the course of our conversation, President Lim observed with deep conviction, "The greatest threat that China faces today is the threat of being overrun by Communism."

This view was widely held by other informed Chinese, and by Americans familiar with the Chinese situation, save those who fatuously chose to believe either that the Chinese Communists were "only bandits" or that they were "agrarian reformers." (There is a wide difference between these concepts, but those who minimized the Communist threat were almost equally divided between them!) This was two decades before the final disaster. There was time to act, but there was not the wisdom.

Communism has sometimes been compared to a religion, and it is true that its converts rather generally display, at least for a time, a kind of evangelical fervor — a fervor which is not shared by the cynical occupants of the Kremlin, each of whom knows that, if he fails to look over his shoulder at the right time, he will be replaced the next day by the next climber up the ladder.

There is this difference between Communism and religion. All of the great religious leaders of the past have placed a high value on human integrity. To be a good Buddhist, a good Jew, a good Christian, or a good Mohammedan, you have first of all to be a good man. To be a good Communist, you have to be a bad man. The still, small voice of conscience must be quieted. A Communist with a conscience would be a liability to the Party. He might some day act in accordance with his conscience instead of in accordance with the party line.

Human integrity provides the common ground on which men of good will of every nation, race, and creed can meet in mutual confidence and understanding. It is man's most precious heritage — the torch that has lighted his climb from savagery, and the only one that can light his pathway into the future. Let us hope that it shall not be extinguished, returning him to the darkness of the jungle.

R.C.M.



Tule elk bulls, their antlers in velvet, in Yosemite Valley in the early thirties. They were finally removed from the park in 1933, in keeping with a policy against exhibiting "exotics," and were sent to the Owens Valley to start the big herd there.

Return of the Outcast Elk

MERCHANT-NAVIGATOR Sebastian Vizcaino reached Monterey Bay in 1602 and busied himself in describing it so glowingly that no one else could identify it for 150 years, but he wasn't too occupied to note that all about him were "large fierce bears and other animals called elks, from which they make elk leather jackets."

White men thus met the tule elk, one of California's most distinctive big game animals — and the elk first met white men, and suffered for it. From the start this target proved too provocative for its own good. When Vizcaino wrote, the elk roamed the great San Joaquin and Sacramento trenches in uncountable thousands. For 250 years they furnished the principal meat supply for explorers, adventurers, pioneers, and gold seekers, but in doing so they were driven to the verge of extinction, and were snatched from it only by the foresight of a single man.

But so well did this gentleman do his work that today the tule elk has come back. This one-time outcast may be seen in many places now, by those who know where to go and what to look for.

The first overlanders from the States to see them were Jedediah Strong Smith and his exploring brigade who forced Tehachapi Pass in 1826 and lived on the elk for many months. The animal was to them as the buffalo had been on the Great Plains. They ate its meat, dressed its hide for clothing, stretched the green skins over with the frameworks, and used the resulting bullboat to probe a wilderness of marshes and swamps in their relentless quest for beaver.

Like the bison, the tule elk was early wiped out from the vicinity of the new ranchos and settlements.

Gunpowder was too expensive for vaqueros, but these splendid horsemen learned to flip their lithe *riatas* on the great deer, or ride alongside and hamstringing them with machetes and so, like all wild things, the elk learned to fear these harbingers of civilization.

Only their larger cousins, the Roosevelt elk of the northwest coast, and the rough-and-tumble grizzly could compare with these valley wapiti for size and gameness. The tule elk had learned to tolerate near desert conditions, and looked it. More drab in coat than the elk of the Rocky Mountains, the Plains, the Eastern states, the Olympic peninsula, or the Arizona mountains, they also were smaller than the others, having learned to swap size for subsistence on their spartan ranges. Most numerous in the south, near Buena Vista and Tulare lakes, and along the lower Sacramento River, they roamed the San Joaquin and other streams of the valleys, but how far northward they ranged is anybody's guess. Old timers said they were very abundant even on Point Reyes, whitening antlers their legacy to this coastal land long after their riddled bones had returned to dust.

Most early travelers had something to say about their numbers. Edward Bosqui (who became a member of the California Academy of Sciences in July, 1853), on a 110-mile walk from Stockton to Mariposa in 1850, saw "bands of elk, deer and

AN IMPORTANT ADVANCE in guaranteeing preservation of the tule elk has been made since the accompanying article by Mr. Thrapp was set up.

At a joint meeting of the California Fish and Game Commission and the California State Park Commission, held in San Diego on October 23, 1953, it was agreed that administration of the Tule Elk Reserve at Tupman should be transferred from the Fish and Game Commission to the Park Commission and that henceforth the area should be called the Tule Elk Reserve State Park. The objective of management will be retention of a small band of tule elk in their ancestral habitat of the San Joaquin Valley. The Reserve retains much of the native flora of the region and will

serve to protect other natural features than just the elk.

In accepting this responsibility the Park Commission embraces an opportunity for outstanding service in conservation. Preserving even a fragmentary glimpse of the original valley flora and fauna, with the elk as a "centerpiece," will have real educational and scientific value. It is to be hoped that the management plan for the Reserve will strive for a naturalistic presentation of the scene, with a minimum of artificial development. Keeping the elk population small, healthy, and in balance with the available range will be prerequisite to maintaining the atmosphere of a nature reserve.—A. STARKER LEOPOLD.

CONSERVATION

antelope in such numbers that they actually darkened the plains for miles" as he approached the foothills. Another writer, near present-day Turlock, awoke one morning to find "hundreds of the big-horned fellows in sight, but none in rifle shot."

By the middle fifties, however, market hunters had decimated the herds and driven the shattered remnant into the tule marshes where they sought refuge as other outcasts had — renegade Indians who lived by raiding livestock of the mission Indians, and white outlaws and freebooters of a later era. But even here the elk found no sanctuary.

"We hunted in the tules with a sloop," wrote one veteran market hunter, "using a ladder lashed to the mast for a lookout. When elk were sighted we would break our way through the tules to them, usually finding them on grassland between sloughs." Extermination was good business. Like buffalo butchers of the Plains, these men seldom permitted an animal once sighted to get away. By the early seventies the elk had been reduced from their primordial thousands — legend has it — to a single pair.

This fortunate couple emerged from the Ark of their marsh on Tulare Lake to find themselves on a Kern County ranch of the Miller & Lux Company, said at that time to be the world's largest stock raising concern. Henry Miller, a dedicated conservationist who refused to let his purse interfere with his convictions, sighted the pair and gave ironclad orders that no elk was to be dogged, shot at, or otherwise molested. From them (and probably others in the secluded recesses of the swamps) the species, a few years after tottering on the threshold of oblivion, numbered nearly 400 animals. By this time they were costing Miller & Lux up to \$10,000 annually in the alfalfa and corn they pilfered, but still the far-sighted stockman refused to permit their reduction until he was certain it wouldn't mean extermination. Would that Miller himself were not so rare a type!

Thanks largely to his sagacity, there are 725 tule elk in California today — as nearly as I can discover — grouped in three large herds and several smaller bands. A few zoos also exhibit specimens for those who want to study them at short range.



Merely going to elk range is no guarantee that one will observe these elusive animals. Some people who live amid one of the state's largest herds claim never to have seen an elk, but one suspects this is because they have trained their eyes to pick up only cattle, crops, and business. "If nobody sees them, what good are they?" asked one such person. It seemed futile to remind him that no one has ever seen air or vitamins or ideas or, for that matter, God, but few doubt the value of these.

It sometimes seems as though everyone has his private name for these deer. They are called tule elk, valley elk, dwarf elk, California wapiti, dwarf wapiti and so on. Although only half the size of the great Olympic Elk, they are second to no animal in courage and toughness, as Miller's riders discovered when they sought to corral and ship seed stock from the Kern County ranch to other areas.

One old bull when roped, "fought so furiously that the skill and agility of the vaquero were taxed to the utmost to save himself and his horse from bloody death," wrote Dr. C. Hart Merriam, then chief of the U. S. Biological Survey, who was an eyewitness. It was he who first determined that tule elk were different from all other elk in the world, and named them *Cervus nannodes*.



▲ Four bull elk, two with magnificent antlers, photographed from a survey plane over Fish Springs, Owens Valley.



◀ Twenty-eight cow and calf tule elk with two spike bulls, photographed from a light plane during a game survey near Aberdeen Station, Owens Valley.

(Both by Donald D. McLean, California Department of Fish and Game)

◀ One bull (center) has seduced all 19 cows at the Tupman Tule Elk Refuge. He has drawn them away from all the other bulls, and he means to keep them to himself. As the photographer neared, he herded them all out of reach.

The tough old animal killed a young bull, cleared a corral of cowboys, battered a huge cowpony almost unconscious, blasted the sides out of a freight car, wrecked a crate into which he was driven, and kicked, hammered, butted, and fought without rest for three days and three nights until finally he reached his new home. There he was liberated and, having nothing left but the spirit of life, he lay down and gave that up, too.

Several hundred elk were taken from the Miller & Lux Buttonwillow herd between 1904 and the early thirties. The remainder, now numbering 31 head, were moved to a special tule elk refuge at Tupman where they are cared for by the Fish and Game Commission. There is a move afoot to transfer them to a new range closer to Bakersfield.

One small group was taken to Yosemite in 1915 and for many years was a prime attraction. Because they never had been native to that area, however, they finally were removed, through the public spirited efforts of G. Walter Dow of Whittier, to Owens River bottomland owned by the City of Los Angeles. They increased mightily. In 1943 a limited open season gave 43 hunters a bull apiece. A second season saw 107 animals, 46 of them cows, taken, and a third will be held when the herd, now numbering 222 animals, increases to 275. The Fish and Game people want to keep

the elk down to reasonable numbers — between 125 and 275 — in the valley, and they anticipate limited hunting every few years.

Other herds started from the Miller & Lux elk met with varying fortune. About 75 were taken to the Hearst San Simeon ranch about 1925. They number approximately 300 animals today, the largest herd of tule elk in the world, and they have 76,000 acres to roam, according to Superintendent Randolph W. Apperson. Another large bunch, of about 150 head, ranges on leased land in Colusa County, with the blessing of the lessee who likes the elk, is glad to have them around, and says he doesn't "care how much they eat."

The Benevolent and Protective Order of Elks has been instrumental in saving many small bands of tule elk and has encouraged their distribution. The San Diego lodge caused some to be liberated in the Mt. Laguna area. Roosevelt elk later were brought in and apparently crossed with the tules, but only a handful of the progeny remain. A few tule elk, perhaps half a dozen, roam the wild Arroyo Seco badlands near Monterey. Others liberated in the Santa Monica mountains and elsewhere years ago disappeared long since. Because elk and cattle compete for forage, their presence even on public lands is often resented by cattlemen. In that sort of situation, the wild animal wins





California's other elk, the Roosevelt elk, may be seen in some meadows near the Redwood Highway. It is distinguished from the tule elk mainly by its much larger size. (Paul J. Fair)

only through valiant efforts of an aroused public.

Among the zoos featuring tule elk are Griffith Park at Los Angeles where they have been successfully raised for 42 years. There now are four tule elk there, three of them mature does. The San Diego zoo unfortunately has permitted tule elk to cross with another subspecies, so what is

seen there is a hybrid. Fresno's Roeding Park has a splendid bull, a cow, and a yearling, and other collections may have additional animals.

So despite the problems raised by their size, appetite, and self-reliance, the tule elk appears to have been saved and generations of the future will be thankful for it.

END



MURIEL L. GUBERLET **THE RIBBON KELP** DRAWINGS BY BETH CURTIS

FROM TIME immemorial kelp, the grass of the oceans, has intrigued man, for the shores of every sea are strewn with it. The scientist has had many theories about it; he has made many investigations of it; and he has used it for many purposes. Even so, seaweeds remain but very little known to the average seashore visitor.

Yet there is one seaweed found on the Pacific coast of North America that is familiar to almost everyone who spends any time on the beach. This is the ribbon or bull kelp, (*Nereocystis lutea*), a large species which dominates the offshore waters from Alaska to southern California. This kelp is particularly conspicuous because hundreds of plants often form great masses spreading for acres across the surface of the water. These kelp beds sway with the current some distance off shore where they resemble floating docks. The early explorers often mistook them for islands, and novices make the same error today. The experienced mariner takes them as warnings to steer clear of submerged rocks sure to be close by.

The early explorers were not far wrong when they thought the docks were islands, for whole

communities of animals live out their little lives on them. They are resting places for gulls, cormorants, grebes, and other water birds, as well as for migrating land birds. At times there are so many gray and white gulls on the kelp that the docks look as though they were covered with a blanket of snow. Swimming near the docks, secure in the protection that the kelp offers, are salmon, rock cod, herring, and bass. Frequently so many salmon hover in the vicinity of the kelp beds that commercial fishermen profit by trawling near the edges of them. In addition to the birds and fish, an untold number of tiny creatures — snails, nudibranchs, isopods, limpets, and bryozoans — live in, under, and among the long stipes and blades of the kelp, jostling one another in their efforts to secure places of attachment. Swimming leisurely among the other animals and producing a rainbow of color are the graceful jellyfish crossing and recrossing one another's paths, while the whole community is menaced by the devilfish waiting to wrap an encircling arm around an unsuspecting victim. Adding a decorative feature to the kelp docks are delicate red and green seaweeds. These have dis-

◀ Young *Nereocystis* left dry by a two-foot tide, Lincoln Beach, Seattle, in April.

covered that the ribbon kelp provides a satisfactory place of attachment and access to unlimited food and well aerated waters.

To form the docks, the stipes of hundreds of ribbon kelp become entwined in an intricate manner. Each plant is anchored to a rock twenty to fifty feet below the surface by a holdfast composed of a densely compact *haptera* — a mass of strong tendrils five to ten inches in diameter. This haptera is strong, requiring a pull of several hundred pounds to loosen it, and then it is the stipe (stem) more often than the holdfast that gives way.

Since the ribbon kelp is anchored far down in the water, the seaweed strives to reach the surface of the water by producing a narrow, tubular stipe, the length depending upon the depth at which the seaweed is secured. The stipe may be forty or fifty feet long. As it lengthens, the stipe gradually becomes thicker until, in its upper one-fourth, it becomes hollow and terminates in an air bladder six to eight inches in diameter. The air bladder,

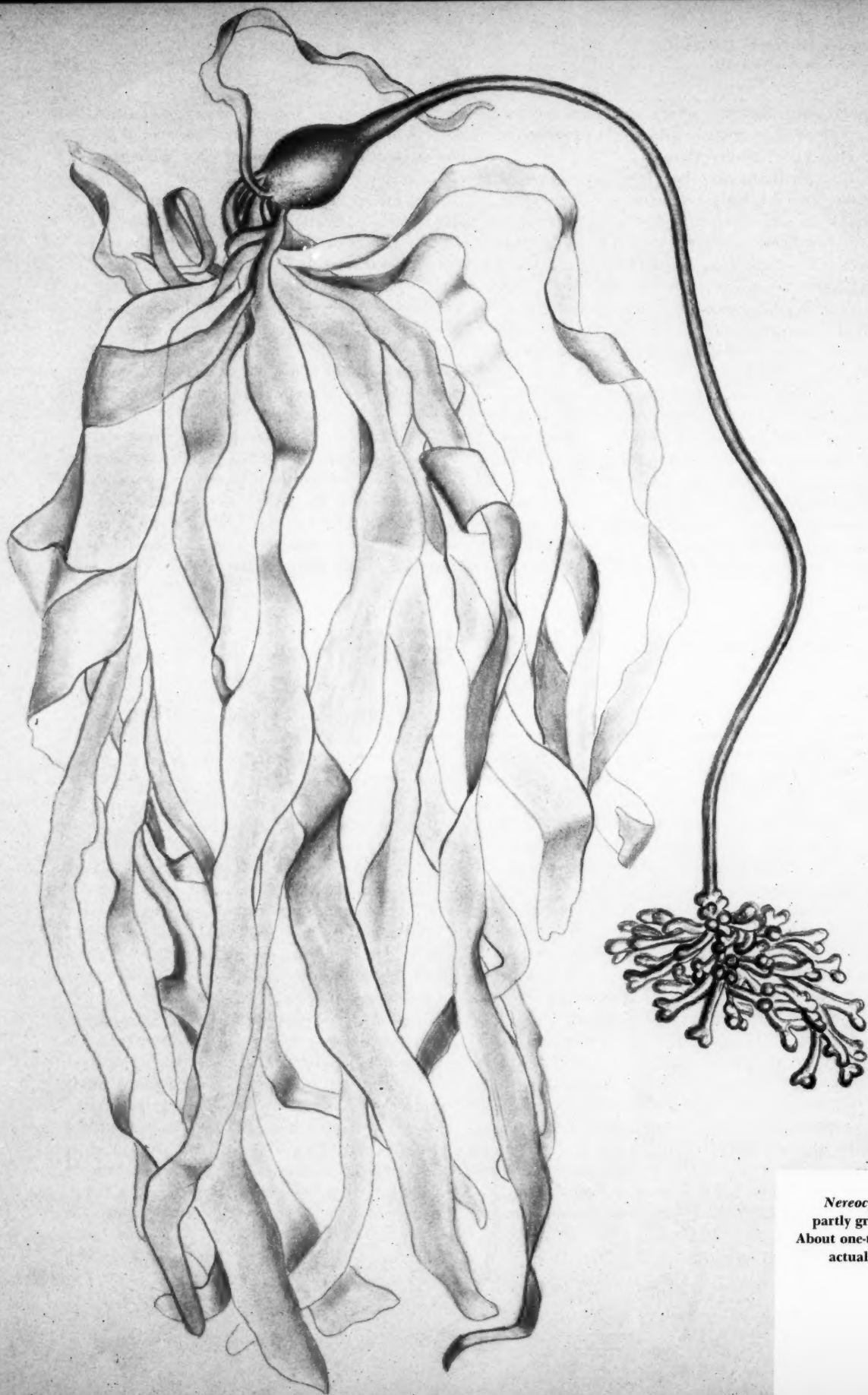
containing a couple of quarts of gasses similar to those in ordinary air plus 12 or 15 per cent of carbon monoxide, buoys the plant upon the surface of the water.

From the upper end of the air bladder arise four short, flattened forks, each with two branches. These forks divide and redivide until by the time the plant is mature there are 36 to 64 subdivisions, each terminating in a golden brown blade which floats rhythmically on the water as the waves and tide rock the surface. The ribbons having the texture of slippery rubber are usually ten to twelve feet long and four to five inches wide. The whole plant, stipe and ribbon, may attain a length of 60 to 90 feet.

The ribbon kelp has achieved a highly satisfactory adjustment to the offshore conditions under which it lives. Seaweeds love the moving waters, but since most of them have a double existence—under water at high tide and out of water at low tide — they are doomed to spend their lives in the intertidal areas, hugging the already crowded

Four early stages of growth showing the development of bladder and blades, actual size. Lincoln Beach, Seattle, in mid-April.





Nereocystis,
partly grown.
About one-third
actual size.

rocks. For this reason the shore just below high-tide mark to a depth of 15 to 20 feet is thronged with many species of broad flat algae. In fact the competition between the species is so intense that the shore becomes a battleground. Here the red, green, and brown seaweed jostle for positions where they can adjust to being left high and dry when the tide goes out, to being exposed to the hot sun during low tide, to being completely submerged when the tide is high, to enduring the decreasing light of the deeper water, and to withstanding the grinding of the wave-washed rocks. In order to escape this intense competition, the ribbon kelp moved to deeper water, thus surrendering the densely populated area to others.

So favorable is this offshore position and way of life that the ribbon kelp is one of the largest and most striking seaweeds on the Pacific coast. Naturally the largest and healthiest specimens are found where the current flows swiftly and where the great surfaces of the ribbons come in contact with quantities of open water and the life-giving sun and air.

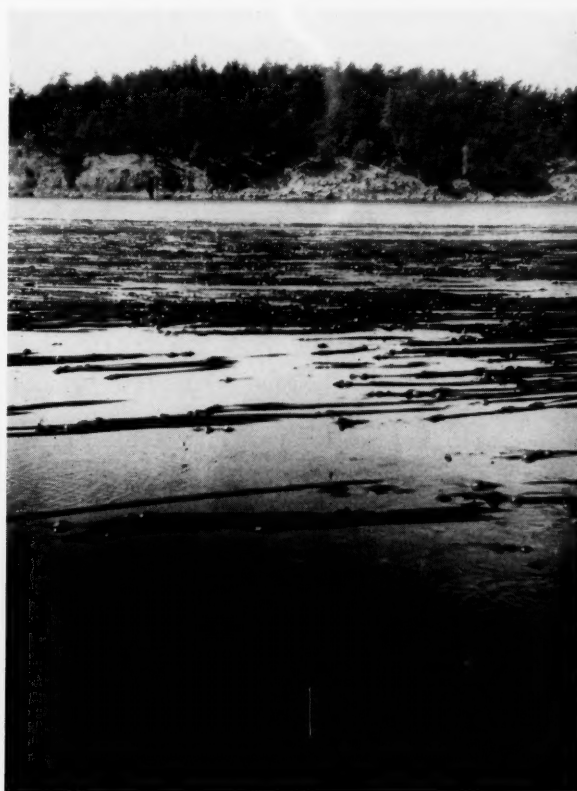
In spite of their splendid adjustment to their situation, the kelp docks are not year-around structures. They are for summer use only. With the coming of winter, they fade away. All the plants and animals which depend upon them for a home either die or are forced to find other hosts. Nature compensates for this destruction, however, and contrives for the reappearance of the seaweed the next year. In the middle of the summer, fertile reproductive cells arranged in patches appear on both sides of the ribbons. In late summer these cells mature and drop from the ribbons.

If the fertile cells fall upon suitable attachments, they begin to develop. As is true of many seashore plants and animals, the mortality rate among the young ribbon kelp is heavy. Some of the spores germinate in places which are exposed during low tide to light so strong it kills the tender plants. Some germinate on substrata which will not hold the plant when the buoyancy of the bulb and the movement of the water begin to strain the attachment. Some are killed by beating upon rocks through tidal and wind movements of the water.

The fertile cells which fall upon suitable attachments and survive the hazards of germination spend the winter far down in the water out of the reach of the waves. Very little is known of the early development of the ribbon kelp, what method of germination is used, or how long it

takes. But by the first of March, a tiny plant appears with a yellow-green blade half an inch long and an eighth of an inch wide. A few days later, this may be an inch long and have a stipe the same length. Soon a minute air bladder develops between the blade and the stipe. Then follows a splitting of the blade (now several inches long) into two parts and these in turn split into four blades. At this point four flattened forks appear at the upper end of the air bladder, each producing a blade. The growth is now very rapid. By late April, the young plant may have a stipe six feet long, an air bladder an inch or two in diameter, ribbons two or three feet long, and a much branched holdfast. In fact the kelp often makes a growth of more than fifty feet between the middle of March and the first of June. Some mathematically minded person estimated the growth at nine inches a day.

For a few months the swaying golden brown masses of ribbon kelp, supple, tough, safe in storm, current, and varying tides, are the most conspicuous features of the shores. But as the summer wanes, the plants begin to disappear. By late October all but a few stragglers have gone. Although the life activities of these few may be prolonged by favorable conditions, there is no evidence of



Kelp bed at Turn Rock near Friday Harbor,
San Juan Islands, Puget Sound.

further growth and those that remain are nearly all decayed and loose with the ribbons torn away.

Naturally during the summer the ribbon kelp sometimes breaks from its anchor and floats in tide pools or is washed onto the shore. On the beach the plant dies in a few hours. While it is fresh and crisp it is put to many uses. Children use the long leathery stipes for skipping ropes or whips, or picnickers wrap the long ribbons around salmon to be baked Indian style on hot rocks in the sand. The kelp gives the salmon a distinctive flavor.

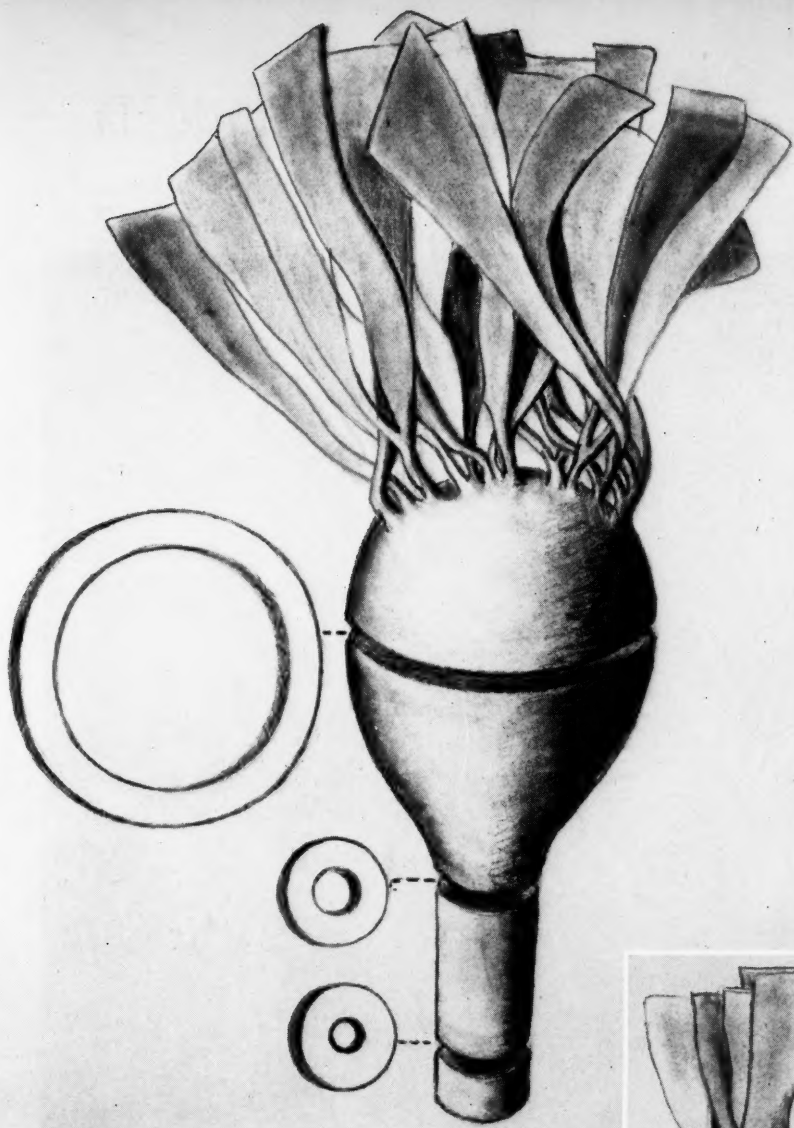
A number of years ago two professors at the University of Washington experimented with making kelp candy. After much trial and error they concocted a product from the stipe and ribbons of the kelp resembling citron. It tasted much like Turkish delight candy, somewhat bitter but good. Although it was patented under the name of "Seatron" it was never produced on a commercial scale. Setchell and Gardner, early students of algae on the Pacific coast, report that the Indians made many interesting uses of the ribbon kelp. For instance, they placed one end of the stipe in the ear and the other against a hot fire to generate steam to cure aches and pains in the head. They also used the hollow upper end for a worm in the distilling of a "dark and poisonous whiskey," and used the solid portion of the stipe for a fish line.

A potential commercial use of the ribbon kelp is as a source of potash salts. A number of surveys have been made to determine the available supply of potash in it. Chemical analyses showed 27 per cent of its dry weight consists of potassium chloride of high commercial value. However, it is not widely used because cheaper sources have been found. Acetone and iodine are also obtainable from the kelps, but again other sources are cheaper. For centuries ribbon kelp has been used in fertilizers. During World War II it was extensively used for this purpose. It is also chopped into small bits and added to stock foods to augment their vitamin content.

The most recent and undoubtedly the most important use of the ribbon kelp is in the making of algin, a colloidal product. E. L. Mantell says, "Algin or sodium alginate is commercially important because of its properties as an emulsifying, jellying, thickening and bodying agent." In *Marine Products of Commerce*, Tressler and Lemon report that several United States patents cover the extraction and purification of alginates. (The per-

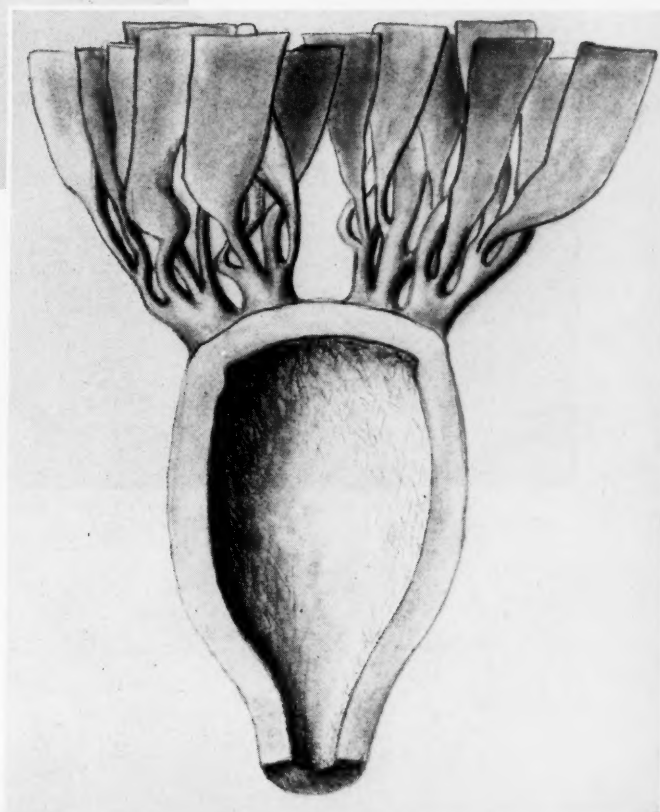


ennial kelp, *Macrocystis*, is also a source of alginates.) In California and Maine several companies are engaged in their manufacture. Alginates are used in a long and impressive list of products: Pharmaceuticals (tooth pastes, burn lotions, surgical jellies, penicillin suspensions); dairy items (ice cream, dry milk mix, chocolate milk, cheese); miscellaneous foods (bakery icings, meringues, French dressing, fountain syrups); adhesives (wall board, gummed tape, decals); textiles (dyestuffs, print posters, plastic laundry starch, sizings for cotton and rayon); rubber articles (automobile carpeting, babies' pants, foam cushions); paper (sizings for ink, wax, and coatings); miscellaneous



◀ (Left) Holdfast, half grown, actual size. (Right) Bladder, showing thickness of the walls in cross-section, actual size.

⚡ Longitudinal section showing further development of the blade base, actual size.

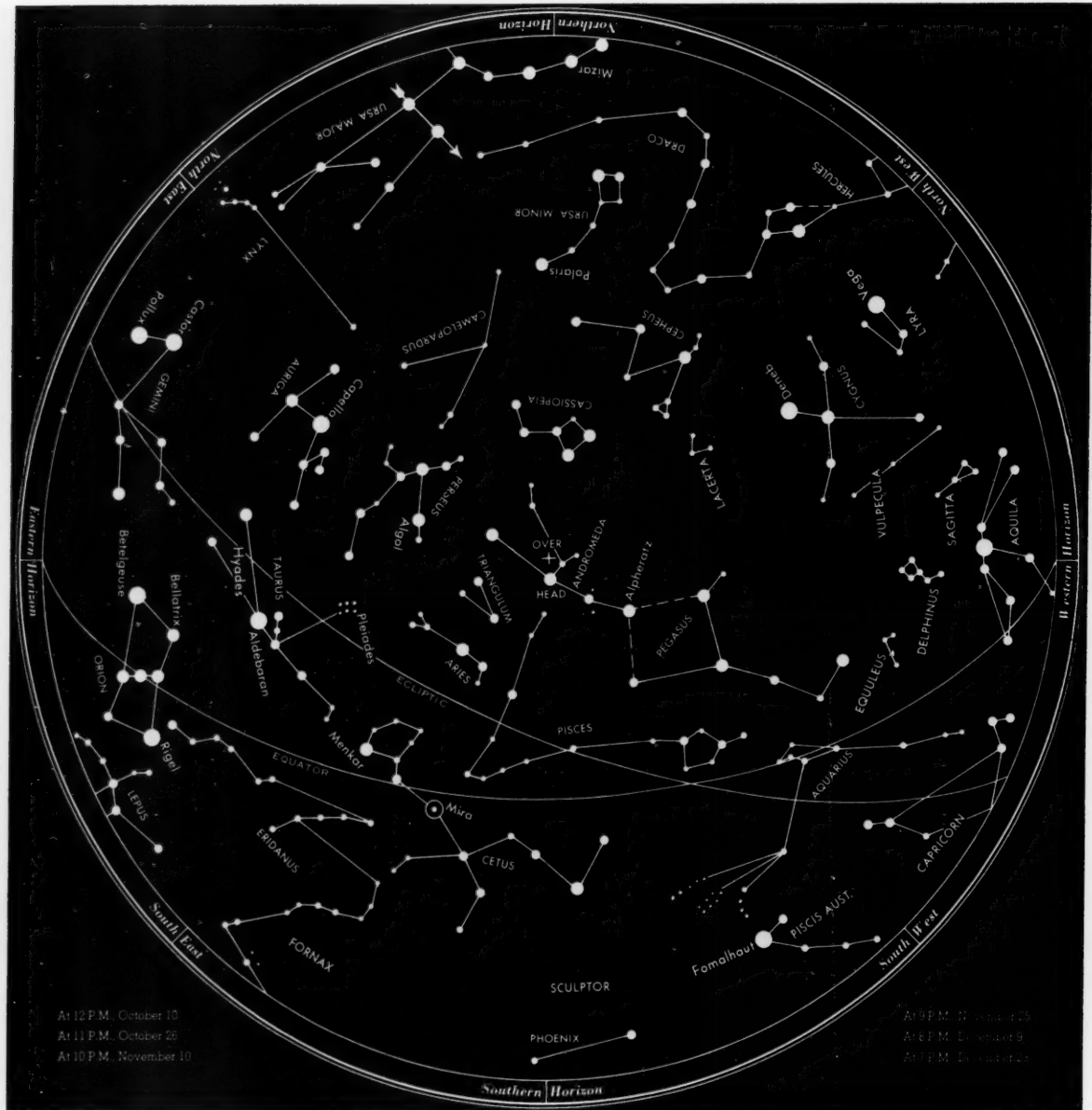


uses (ceramic glazes, leather finishes, auto polishes, coatings for marine and naval boilers). The list seems endless.

The ribbon kelp is a plant admirably adapted to the conditions under which it must live — the fierce competition of the seashore, the continuous ebb and flow of the tides, the incessant beating of the waves, and the cruel grinding of the rocks. Yet in making these adjustments it has developed a fascinating life history, gives great pleasure to the seashore Rambler, and holds unlimited commercial potentialities. In short the ribbon kelp commands the respect of both nature lover and scientist.

END

NOVEMBER-DECEMBER 1953



Stars of a Winter Night

THE CHART shows the principal constellations in the evening sky during the months of December and January at the days and hours shown in the margin. To use this sky map, hold it overhead with directions in proper relation to the horizon; or you may hold it in a vertical position with the true compass direction you are facing placed at the bottom.

Planets are not shown on star maps designed to be used year after year, as they shift continually against the constellation background. The only planet visible in the evening at this time is Jupiter, located in Taurus, the Bull. It is brighter than any star and shines with a steady light. On the 13th of December Jupiter will be opposite the sun, midway in its retrograde or westward motion. Two lines of stars diverging north-eastward from the bright star Aldebaran lead to stars at the tips of the Bull's Horns; Jupiter is right between these two stars during mid-December. Watch it during succeeding weeks until early February when the planet will have moved half the apparent distance toward Aldebaran, there to cease its retrograde motion and resume the ordinary eastward direction along the Zodiac. The phenomenon of retrograde motion is caused by the circumstance that we are on a relatively fast-moving inner planet, the earth, watching Jupiter which is five times as far from the sun and moving slower than the earth. The effect is the same as in watching a slow moving automobile on an outside circular track from a fast moving car passing it on the inside track.

The Big Dipper, one of the most familiar star patterns in the entire sky, is now seen low in the northeast; note the Pointer Stars which direct a line to find Polaris, the North Star. The dipper is just a part of a more extensive and ancient outline known as Ursa Major.

A fainter part of the Milky Way than appears in summer's sky now stretches overhead from southeast to northwest. The associated bright stars are, however, more dazzling — especially in and around the great constellation of Orion, the Hunter. Its two brightest stars, Betelgeuse (pronounced Bet'-el-juz) and Rigel (rye-jell) present interesting contrasts with each other and with our own sun. Betelgeuse, distinctly reddish in hue, is a giant star of comparatively low temperature — about 4500°F. Its diameter is enormous — 250 million miles or almost 300 times that of our sun. Rigel, with its distinct blue-white color, has a very high temperature, probably in the neighborhood of 30,000°F. The total amount of light it radiates exceeds that of our sun by 20,000-fold — in terms of its luminosity Rigel is a *super-giant* star.

Just below the Belt of Orion (the three very regularly spaced bright stars in the center of the constellation) is a faint, fuzzy patch of light. It is the Great Nebula in the Sword of Orion, which must be looked for on a dark moonless night. The photograph shows its appearance as revealed by a two-hour exposure with the 36" Crossley reflector at the Lick Observatory. Note the turbulent appearance of the nebulosity, which is composed of vast streamers of interstellar dust and gas throughout a volume of space which is at least 100 light years* in diameter. The illumination is due to the incidence of ultra violet light from very hot stars enmeshed in an extremely rarified gas. The light given out by this glowing interstellar gas has a distinct blue-green tinge, from the spectrum of oxygen under conditions of very low density in the presence of ultraviolet radiation. The phenomenon is something akin to the *fluorescence* observed in lighting tubes.

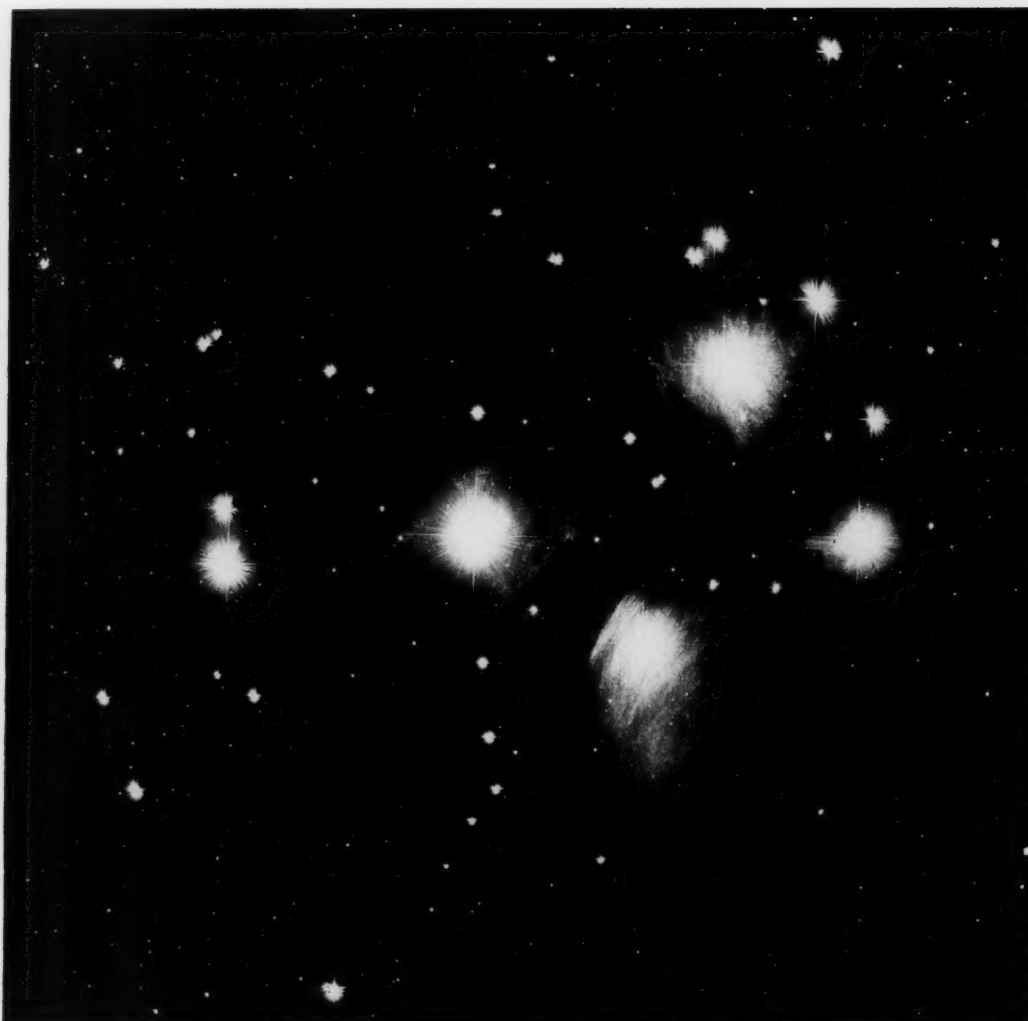
Extending the line of the Belt stars upward one comes to the renowned little group called the Pleiades, a star cluster located about 300 light years from us. The six or seven stars which most people can see with unaided eyes are joined by several hundred when the cluster is photographed. The picture (p. 16) shows the cluster and its associated faint nebulosity as recorded in a two-hour exposure with the Crossley reflector. This nebulosity, never seen except in long exposures on sensitive film, is quite different from that of Orion. In this case the light of associated stars is merely *reflected* from particles of interstellar dust and gas; the Pleiades stars are not hot enough to supply the concentration of ultraviolet light needed to produce the fluorescence effect in oxygen or other atoms.

When the line of Orion's Belt is extended downward one comes without fail to brilliant Sirius, called "The Scorching." By virtue of fairly high luminosity and comparative nearness (being merely 9 light years away!), it appears to be the brightest star in all the heavens. Sometimes astronomers are asked whether, perhaps, this brilliant object seen sparkling in the sky around Christmas time could provide a scientific explanation for the story of the Star of Bethlehem. The answer is *no*, for this was a well known and regularly observed star from the time of earliest written history; the essence of the Star is that it was *not* a regular member of any constellation pattern. In the December program of San Francisco's Morrison Planetarium other more likely interpretations are being presented and explored.

L.E.S.

*One light year is nearly 6 trillion miles.

Turn the page for photographs



↑ The Pleiades star cluster and nebula — note the streaked appearance of the wisps of nebula. Rays coming out of the bright stars are owing to an optical effect in the telescope. Photographed January 13, 1939, with a two-hour exposure through the 36-inch Crossley reflecting telescope.

➔ The Great Nebula in Orion. Composite print from a two-hour exposure with the 36-inch Crossley reflector, showing detail in the bright central regions as well as the very faint outer streamers. (Both taken at Lick Observatory, University of California, Mount Hamilton, by N. U. Mayall)



Heavenly discourse

Johannes Kepler: *Life and Letters*. By Carola Baumgardt, with an Introduction by Albert Einstein. Philosophical Library, New York. 1951. 209 pp., frontispiece, index. \$3.75.

Johannes Kepler (1571-1630) was the most brilliant astronomer of his time. Becoming at 21 years of age a teacher of mathematics at Graz, he was a correspondent of Galileo and Tycho Brahe, became assistant to the latter, and on Tycho's death succeeded him as imperial mathematician at the Court of Prague. His discoveries relating to planetary motions (Kepler's Laws) have given him permanent fame in the history of astronomy.

This book is a translation into English of many of his letters, interspersed with comments by the translator. This makes for a somewhat disconnected narrative, which is probably inevitable in published "letters." We had to refer to the article on Kepler in the *Encyclopaedia Britannica* to get all the pieces fitted together. Nevertheless, as an illuminating account of the astronomer's character and personality and also of the conditions of the period in which he worked, this volume is of intense interest not only to persons with astronomical leanings but to everyone who is concerned with the history of those troublous times. The last twelve years of Kepler's life were lived during the Thirty Years War, and reading his letters might be a salutary exercise for people who think the world is in a bad state today.

Kepler was the imperial mathematician and enjoyed the favor of the Emperor (Rudolph II), but he seldom collected his salary. The Emperor was hard up, and so, it followed, was Kepler. He mentions receiving payment for one of his works in free beer from the city of Linz, without further comment, as though this were an ordinary manner of payment for scientific work. He at least half-way believed in astrology, and cast horoscopes for members of the Court, although as time went on he seemed to believe less and less in the "influence" of the stars. His religious as well as his scientific views brought him into continual friction with ecclesiastical authorities. He was in the midst of a protracted war that was being fought with great bitterness and senseless violence. His scientific writings were subject to close censorship. His seventy-four year old mother was accused of witchcraft and held in prison for fourteen months. He used every effort and persuasion to secure her release; but it appears actually that she was acquitted because after long imprisonment and threat of torture, she refused to confess. A few months after her release, she died. This was in 1621. Comparison with countries behind the iron curtain today are too obvious to require comment.

It is a remarkable fact that, under these circumstances, Kepler persisted indefatigably with his scientific studies. Perhaps the reason is that he was a mystic. Although his mysticism led him into certain useless by-paths, such as comparing planetary distances to musical intervals, it gave him fortitude, strength of character, and an absolutely religious devotion to astronomy and mathematics. In 1629 he wrote to Jakob Bartsch, his prospective son-in-law,

"We both are only human beings, the ship of state is shaken by dangerous storms, and no vessel has a safe

anchorage . . . when the storms are raging and the shipwreck of the state is frightening us, there is nothing nobler for us to be doing than to let down the anchor of our peaceful studies into the ground of eternity."

Kepler's letter to Baron Peter Heinrich von Stralendorf, in 1613, on the eve of the astronomer's second marriage, is a remarkably frank and self-revealing human document — the hesitation, the indecision, the weighing of pros and cons, the unwillingness to rush into an unsuitable alliance, and still the yearning for the ones he "let . . . slip away"; finally his decision to marry an orphan girl, Susanna Reuttinger, of whom he wrote ". . . high rank, wealth and parentage, of which my bride has none, must be ignored and the other simpler virtues be sought for." The marriage turned out happily.

The index to this book is somewhat remarkable. It consists of an alphabetical roster of persons mentioned in the text, with page references, also dates of birth and death, occasional thumbnail biographies, and miscellaneous comments. Without committing ourselves as to whether it is a good index, we will say it is the only index we ever saw that made interesting reading!

R.C.M.

Stars in the Making. By Cecilia Payne-Gaposchkin. Harvard University Press, Cambridge. 1952. xii + 160 pp., text diagrams, 67 halftone plates. \$4.25.

Ninth in the series of Harvard Books on Astronomy, *Stars in the Making* is highly readable. The author, undertaking to deal in popular terms with the very difficult subject of stellar evolution, has divided the book into three parts with intriguing subtitles: "The Players," "The Scene," and "The Drama." The first section describes stars of different types (including our own sun, of course), and discusses dust and gas clouds between the stars, that is the *interstellar* material. Part Two depicts stellar associations: double and multiple star systems, clusters, and finally those greatest of all structural units, the galaxies. In the last section, Dr. Payne-Gaposchkin takes us through the intricacies of evolution: the time scale of the universe, and the birth and development of stars and galaxies.

The author holds the distinguished position of Phillips Astronomer at Harvard College Observatory. She has spent 25 years in astronomical research, principally on variable stars. By experience and association she is well qualified to discuss the wealth of observational material and diverse theories in stellar evolution. She even has a few pet theories of her own which she clearly presents, labeled as such, so that no one can say she is trying to pass off tentative ideas as generally accepted principles. Those portions of the book therefore provide the layman with a behind-the-scenes view of a research astronomer trying to bring a coherent hypothesis out of a bewildering assortment of data.

This reviewer has not seen such colorful and vivid style before in a book whose subject matter is unlikely to produce light reading. The author's use of similes is carried to great heights, naturally following the lead of her three subtitles. Conservative readers, used to strictly defined terms in scientific fare, are in for a few jolts: e.g., when the distribution of electrons about the atomic nucleus — conventionally called a *cloud* — is termed both a *fog* and a *haze* on the same page. Another high in similes comes

when disintegration products of radioactive nuclei are called *atomic corpses*! This lively terminology may delight one who is never going to be an astronomer, but for the benefit of possible embryo scientists among her readers (there may be quite a few!), Dr. Payne-Gaposchkin might have made sure that important concepts are always clearly given their conventional labels before (or after) the embroidery is laid on. And not even in the most elementary scientific writing should the words "mass" and "weight" be used interchangeably, as she does. One unfortunate error was noted — Castor is the fainter, not the brighter, of the Heavenly Twins.

Nevertheless, in the opinion of this reviewer (whose business is popularizing astronomy), all planetarium lecturers and others in like positions should read *Stars in the Making* not only for information but also for the many apt phrases and vivid analogies suggested.

It is inevitable that a book dealing with a fast-yielding frontier of research is going to need revision as soon as it is published. *Stars in the Making* appeared just before Walter Baade announced at the Rome meeting of the International Astronomical Union, September 1952, the revised distance scale for galaxies! As a result of the two-fold increase in measures of inter-galactic distances, certain exceptional properties of our own Galaxy noted in this book no longer hold. Also, it should be noted that the remarkable success astronomers at Yerkes Observatory have had in tracing spiral arms in our Galaxy (mentioned on p. 85) resolves the dilemma of winding vs. unwinding spiral arms (pointed out on p. 94).

Everyone interested in glimpsing the most profound problems of structure and evolution in the universe should read *Stars in the Making*. Without some background in basic astronomical and physical principles, parts of the text will be a little cryptic, as for instance the statement: "The delicate detail of the atomic lines shows that the atmosphere of Rigel is far more tenuous than the sun's." If such statements as these pique the reader into further study, they may serve their purpose. To one desiring to get the most out of the book, this reviewer would recommend following up a quick but enjoyable reading of it with the careful study of a companion volume in the Harvard series, *Atoms, Stars, and Nebulae* by Goldberg and Aller (Blakiston, 1953). With the fundamentals of astrophysics thus acquired, a second reading of Dr. Payne-Gaposchkin's book should be an illuminating experience. L.E.S.

To tell of trees



Coast live oak. (Paul Landacre, courtesy Houghton Mifflin Company)

FEW REAL AMERICANS, we venture to say, can easily resist a book of trees. The weakness undoubtedly hangs over from our pioneer Age of Wood days. We came to a continent of trees. We felled and burned them, yes; but we also admired and used them. Metal had to be brought in the tiny ships, at first; wood was the most abundant material and got used in every conceivable way. The modern American ecstatic over a nicely grained plank at the yard is paying homage to his woodworking forebears — settlers who made whatever they needed from a barn to a butter-churn, a ship to a shoe horn, as well as every kind of tool handle. The more adept with spokeshave, chisel, auger, and saw became our first manufacturers: wheelwrights, shipwrights, cabinetmakers, gunsmiths, coopers, toolmakers, and so on. Walnut for gunstocks, hickory for hoe handles and whiffletrees, white pine for spars — Americans found a native wood ideal for every need. The love of trees is grained in us! It comes from the hand as well as the heart.

A Natural History of Western Trees. By Donald Culross Peattie. Illustrated by Paul Landacre. Houghton Mifflin Company, Boston. 1953. xiv + 751 pp., illustrated, end-paper maps, glossary. \$6.00.

Donald Culross Peattie covers the forests of the Pacific Slope in *A Natural History of Western Trees* in the same fascinating and thorough manner as he did those of the continent east of the Rockies in *A Natural History of Trees*. The two volumes complement each other; together they provide for the layman a complete encyclopedia of the native sylvia of North America north of Mexico.

Mr. Peattie, a recognized authority on botany, handles the subject in a competent and scientific manner, but using clear and non-technical terms throughout. Both expert and amateur will find it not only a reference work for use in the field, but also good reading for the casual moment.

Identification is made easy for those who prefer to thumb through the pages and search among the accurate illustrations by Paul Landacre. For the expert, complete field keys are provided. There are two indexes, one of scientific names and the other of common names. As the reader goes from one tree to the next, he becomes more and more aware of the vital role played by our forests in the history and development of the West. When gold petered out, many turned to the timber lands for lumber or to clear for farming. Land grabs, lumber barons, feuds and open warfare — all lend fascinating and unexpected interest to a book supposedly on a subject as dry as sawdust. Likewise, the technical and commercial uses of each tree and its wood are fully brought out.

Not only are the usual botanical items included, such as the range of the various species, the description of their growing habits, of their bark, branches, leaves, flowers and fruits, but also the legends and stories that surround them. Here Mr. Peattie excels, for he is one of America's foremost writers on natural science. It is this integrating of the human element that makes our forests come alive, and it is the facile way in which he does it that makes these books invaluable for the amateur lover of nature as well as the serious-minded student and conservationist.

Mr. Peattie starts with the giant Sequoia, monarch of the kingdom of plants — the oldest and mightiest of living things. This chapter is a personally conducted tour through the mountain habitat of this ancient king accompanied by a running commentary on its geologic and human history, its discovery, the international quarrel over its naming, the uncertainty of its great age, its possible despoliation and its future preservation.

Of its imperishable nature he writes in his usual pithy manner "that it never dies of disease or senility . . . and only a bolt from heaven can end its centuries of life. Perhaps, if this majestic tree had a will, it would prefer to go this way, by an act of God."

From this chapter you gain the impression that the author is partial to *gigantea* — and you become imbued with the same feeling. Then in the next chapter, you find that he waxes equally enthusiastic over its coastal cousin *Sequoia sempervirens* and again carries you with him. Here you learn a lot of new things about an old friend, particularly about its part in the adventurous history of California — the early missions, the Spanish and Russian settlements, the gold rush, and finally the development of the fabulous Redwood Empire with its scenic attractions and industrial growth.

As you read through the pines, you find that he rises to new heights in his treatment of the sugar pine. Those conservationists who have been fighting for the preservation of these, the greatest of their genus, will find new and valuable data and inspiration in his glowing tribute.

And when the author reaches the Douglas Fir, "the tallest and most ponderous in North America, save the two Sequoias . . . the most majestic species, as it is the most commercially important," he shows his master hand as botanist, naturalist, historian and writer. It is here that you suspect that this is really his favorite tree. Here he has condensed a score of books on the story of the wanton wastage of the boom-and-bust days, the wholesale piracy and hijacking, and of the spectacular fires that "burned over forests the size of a European principality." Finally he gives us an overall picture of the past and future of the lumber industry in the Northwest.

While we have been able to refer to only a few, the book covers 200 trees native to the Pacific States. The author treats each and every one of them with equal thoroughness as he seems to be familiar with them all. For the Westerner, native or synthetic, who loves the natural scene, this book is more than just a *Natural History*, it is, in addition, fascinating and enlightening reading. Select a chapter at random, or on your favorite tree, and you will understand what I mean.

As an example, I quote a passage of typical Peattian poesy in prose — his description of the Monterey cypresses on Point Lobos, where "Nature shows her hand in every contortion of the twisted and incredibly stunted and thickened or flattened trunks, in the sinuous, flattened buttresses that spring from the base of the trunks and snake their way down the sea cliffs, in the long arching of the lower limbs, in the massed intricacy of the twigs, in the sculpturing of the flat-topped crown . . . sometimes . . . tilted, like a great hat worn aslant. . . . Often many will grow together thus, crouching with their backs to the lash of the salt winds, but presenting landward an impenetrable natural hedge."

OLIVER KEHRLEIN



Again, as with Mr. Kehrlein's review of *A Natural History of Trees of Eastern and Central North America* (Houghton Mifflin, 1950), in *PD*, July-August 1951, there remains the pleasant task of adding a word about the format and illustration. The two books make a handsome matched set, and it would be a pity not to have both together along with your other most prized books (incidentally, though in matched bindings the books are not marked "volume 1" and "volume 2" — a piece of thoughtfulness, toward the buyer who just has to limit himself to the one of closest interest, for which the publisher should be praised; but in thus touching on price, it should be added that we think these are among the best values in books, or anything else, that we have seen lately). If anything, the noted California artist Paul Landacre has exceeded the high standard of beauty and faithfulness to nature he set himself in the first volume. He is one of those conscientious craftsmen in the rendering of nature who reveal nature's inherent form and design without excessive personal mannerism or stylization. Yet through subtle emphasis on the essential, the result may be more to the life than a photograph. In the *Western Trees*, as in its companion volume, Peattie and Landacre have combined literature, natural history, and art in the superlative degree.

D.G.K.

The Story of Trees. By Dr. Ferdinand C. Lane. Doubleday & Company, Inc., Garden City, New York. 1952. 384 pp., 36 photographs. \$5.00.

In an attractive, fact-packed, fast-paced book, Dr. Lane, a popularizer of science with a magazine digest style, has presented the lore and life of trees around the world. Here are history, mythology, physiology, dendrology, technol-

ogy, ecology, geography, statistics, economics, with forestry, products research, conservation, and prognostication of "The Dawning Age of Wood." This is a book to inspire and nourish dozens of after-dinner speeches and high school essays.

The author has, according to the jacket, "traveled extensively throughout the world," and "has written a series of books on global geography." He is also "a man of . . . great ingenuity." Possibly he may be credited with geographical inventiveness — other sources have not yet caught up with his "Tahoe National Park" (p.68), "Nez Perce National Park" (fac. p.256), or "Monterey County, Maryland" (fac. p.161). Nor can we place his "Explorer John S. Frémont" (fac. p.244) — a relative of John C.? If we may trust Mr. Bartlett, Dr. Lane has misremembered Dean Swift's paraphrasing of De Morgan's "Great fleas have little fleas," etc. (p.162). It serves merely to introduce a chapter about "Warfare on Insect and Fungus Pests," hence has no importance here. But might not Dr. Lane have misremembered some of the facts and figures he cites, as well? It is captious to judge a book by a few boners that leap at one reader who just happens to recognize them. Nevertheless, they serve as warning to keep other sources handy while you read. There may be a few more.

The Best Loved Trees of America. By Robert S. Lemmon. The American Garden Guild and Doubleday & Company, Inc., Garden City, New York. 1952. 254 pp., 293 photographs. \$3.50.

Under the subtitle "intimate close-ups of their year-round traits," the well known garden editor, Robert S. Lemmon, has randomly arranged descriptions and pictures of the 59 trees he determined to be most popular the country over. He calls it "a book of tree appreciation," and whatever it may lack in completeness or any kind of systematic order, it is certainly a fine assemblage of professionally made tree photographs, many of them showing the same individual deciduous tree in summer and winter, with details of leaves, blossoms, fruit, and bark for most subjects.

Telling Trees. By Julius King. William Sloane Associates, Inc., New York. 1953. 127 pp., line drawings by Richard C. Sigafos. \$2.00.

A simple, graphic guide to the identification of some 100 familiar American trees, boiled down to essential details, with very clear illustrations, and small-scale distribution maps for each species.

One summer in the arctic

DURING the writing of *Icebound Summer*, Sally Carrighar had occasion to visit the Academy and proved a doubly-welcome visitor. George, a baby harbor seal, had failed to adapt to his environment in Steinhart Aquarium where he had been brought by the crew of a Standard Oil tanker. "The young seal pup misses its mother," Miss Carrighar diagnosed. As a cure for the homesickness, she donned a lab apron and took the youngster out on the lawn for a morning romp each day of her stay here. George recovered and for many months was a chief attraction in the seal pool in the Academy courtyard. Miss Carrighar returned to Alaska to further her great understanding of the animal life she writes about in her latest book. (B.J.)

- ← Common manzanita. (Paul Landacre, courtesy Houghton Mifflin Company)
- Captive loon. (Henry B. Kane, courtesy Alfred A. Knopf)

Icebound Summer. By Sally Carrighar. Alfred A. Knopf, New York. 1953. xi + 262 pp., illustrations by Henry B. Kane. \$3.95.

The appearance this summer of another of Sally Carrighar's studies of animal life should be marked well. It is an occasion that cannot help but stir up wide admiration among her fellow biologists as well as general readers. Miss Carrighar goes far beyond most naturalist writers, both in the beauty of her prose and in her deep understanding of the animals she writes about.

Three years is a long time in the making for a book that isn't a compendium or other detailed research project. Yet in the easily readable language and descriptive passages of *Icebound Summer* there is ample evidence of a great deal of research. The pages are packed with the results of careful observations. The reader gains all the natural science facts but he gains understanding along with them, interpretation in a limited sense.

In her descriptive passages of animals of the Arctic, Miss Carrighar places them in their natural settings. The reader's understanding of the chief characters in the pageant deepens as he sees them in their environments and feels the effect of the elements of wind, of rains and snow, and of the depths of winter upon them. Herein lies one of Miss Carrighar's greatest scientific accomplishments, an understanding of the complete environment. Her literary contribution is in the beauty of words which she appreciates and cherishes and in her mastery of their highest use.

Along with two previously published volumes, *One Day at Beetle Rock* and *One Day at Teton Marsh*, the current work constitutes a major contribution to natural history, a work that adds understanding of animals to a field where emphasis is generally on taxonomy. B.J.



Our watery world

THREE DIFFERENT BOOKS on one common subject present a perfect opportunity for PD to realize one of its chief aims in reviewing books. That is, to bring together several works related somehow in subject and compare them, not as to relative merit necessarily, but rather as to purpose — what use and group of readers is each intended for? Any number of totally unlike books could be written on so universal a theme as water. The question is, which one is for you?

Water, Water Everywhere! By Mary Walsh. Pictured by Helene Carter. Abingdon-Cokesbury Press, New York and Nashville. 1953. 48 pp. \$2.00.

Water: Miracle of Nature. By Thomson King. The Macmillan Company. 1953. 238 pp. \$3.50.

Water: A Study of Its Properties, Its Constitution, Its Circulation on the Earth, and Its Utilization by Man. By Sir Cyril S. Fox. The Philosophical Library, Inc., New York. 1952. xxvii + 148 pp., 25 photographs, 4 text figures. \$8.75.

If you are at least eight, or in the fifth, sixth, or seventh grade, Mary Walsh and the artist Helene Carter have made an attractive little book, **Water, Water Everywhere!** to get you thinking about how wonderful and important water is. You see it rise as vapor from all the oceans and form into clouds. You see it come down as rain on earth, making streams and rivers which carry it back to the oceans — the “great circle” water makes. And you see it as snow in winter. Then in spring you see how water makes things grow. You learn just a bit about what water is, and about the many ways in which we use water — about wells and dams, canals and locks, mills and power plants. Then there is a good deal about water in nature’s world — ponds, lakes, waterfalls, and the ocean teeming with life, and the fascinating seashore, and even deserts, which happen because there isn’t enough water in some places. One of the most important things you will get from this book is this: “We must keep trees, bushes, or grass on the land” to let the rainwater soak in gently and not wash away the soil and cause ruined land and terrible floods. After reading **Water, Water Everywhere!** you will have a good idea why we cannot live without water.

Thomson King’s **Water** is a mature book but non-technical although he has approached this favorite subject of his from a career as utilities engineer and his present position as director of the Maryland Academy of Sciences. Mr. King is “happiest when near, on, or in” water. His enthusiasm has produced an informative, lucid, balanced, and altogether fascinating book that should satisfy any inquiring layman’s thirst. Like *The Sea Around Us*, this is a book that hangs a wealth of general knowledge on one capacious hook. Several of Mr. King’s chapters taken together in fact comprise an outline of oceanography, nor is he trailing Miss Carson in mere readability. The chapters in Part 1 — “Water and the World” — on the nature of water and its three states and the life in it could be taken by any alert high school student as aperitif to a chemistry, physics, or biology course, whereupon he should approach his studies more eagerly. (Indeed, if textbooks were so written, truant officers could go fishing seven days a week.) History is here too, in Part 2 — “Water and the

Life of Man.” We see man’s first attempts at irrigation and community water supply, his centuries-old struggle for control of the seas, his vast modern undertakings of irrigation, flood control, and hydroelectric power. Even such things as water worship and dowsing come in, and there is a fine chapter on canals. Mr. King’s closing chapter, “To Conserve Water is to Conserve Life,” should be reprinted on the editorial or front page of every newspaper. Plato understood the catastrophic chain reaction following denudation of watersheds, as a quote from the *Critias* shows. And the simple truth of Mr. King’s paragraph still needs hammering into the skulls of plain men and bureaucrats 2,300 years later:

Building a dam for flood control is like letting a fire get a big start before trying to put it out. We must start where the trouble starts, which is where the raindrop falls. We must see that . . . the soil is kept covered with something: trees, grass, or what can be left from crops. The water must be allowed and compelled to get into the ground, which is nature’s reservoir, far greater than any we can provide. We must also check all waste of water and cleanse our streams and rivers of pollution. All this will require education, wise planning, hard work, and much money; but it will bring progress toward remedies that are permanently effective.

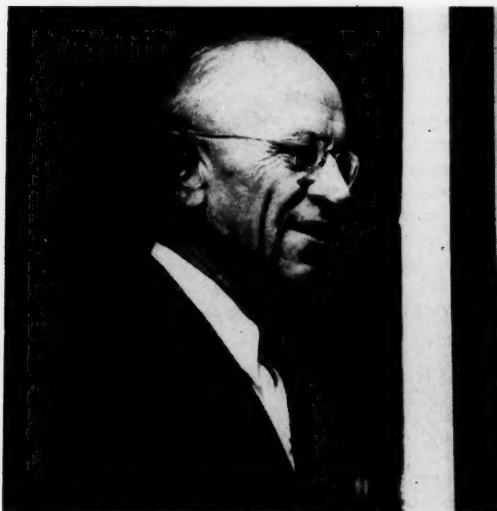
Much money is found for dams; wouldn’t it take much less to educate dam advocates? (the reviewer speaking). Whatever controversies rage over means, all can agree with Thomson King that “so long as men inhabit the earth, their success and happiness will, in a large measure, depend upon how wisely they control and use water.” Thus he closes an absorbing book.

For the serious student, or anyone concerned with water scientifically or for technical purposes, Sir Cyril S. Fox, D.Sc., F.G.S., has provided a treatise, **Water**, which, while meeting those requirements, can be read by the well-grounded layman with great interest and profit. Under “The Natural History of Water” (Part 1), the author discusses constitution, distribution, and circulation. “The Work Done by Water” (Part 2) comprises erosion of the land, action of underground water, and deposition of sediments. Taking up “The Utilization of Water” (Part 3), the engineer-author goes from general considerations (hydrography, contamination, stream gauging and silt measurement, wells and springs, etc.) to water supply engineering — the professional field for which this book is intended to supply the necessary background of general information about water. Concluding remarks touch briefly on the radioactive waters in Bikini Atoll, water rights, and the national aspect of water supply. The many photographs include Old Faithful, the frozen Siberian mammoth, two views of Victoria Falls, several great American dams, and other interesting subjects. Those who do not need this book for professional reasons may shy at the price, which seems to us at least three dollars too high, though it is a well-printed import. D.G.K.

Our natural world

OUR INTEREST in the natural world around us is currently growing, if we may judge by the enthusiastic reception accorded Life’s magnificent series, the success of Walt Disney’s *True Life* films, and the spate

of books on nature in all its phases. What is actually going on, perhaps, is that never has everyone's natural interest in everything natural been so abundantly fostered and stimulated by a great variety and quantity of graphic media.



Round River: *From the Journals of Aldo Leopold.* Edited by Luna B. Leopold. Illustrated by Charles W. Schwartz. Oxford University Press, New York. 1953. xiii + 173 pp., line drawings. \$3.00.

The fact that a gratifyingly large number of copies were sold of Aldo Leopold's *A Sand County Almanac* (Oxford, 1949), with several printings, indicates two things to us: a gratifyingly large number of people are responding to the best in contemporary literature of nature (nature writing is too thin an expression for any of that which may be called "the best"); and Aldo Leopold speaks directly to many appreciative readers besides this one.

Round River is "more of the same," in part, — Parts I and III, — with a difference in Part II, which is largely from the author's hunting journals. "A Man's Leisure Time" (Part I) is a gem among essays; and "The Round River" (Part III) is deepest insight into the ultimate meaning of conservation. It could not be too widely read for the lasting benefit of all of us, whatever our own insights.

If Aldo Leopold were alive, probably no one would have been surprised but himself at the reception of *A Sand County Almanac*. There are many readers ready primed for more Leopold. Here is *Round River*!

Possums. By Carl G. Hartman. University of Texas Press, Austin. 1952. xiii + 174 pp., 104 illustrations. \$6.00.

Forty years of research on one American animal, by a noted physiologist, has produced a book that has been called "a natural history classic of the first water." The story of European discovery of and subsequent fascination with the unique American opossum is of the stuff of N. J. Berill's *Journey into Wonder*. It was none other than the

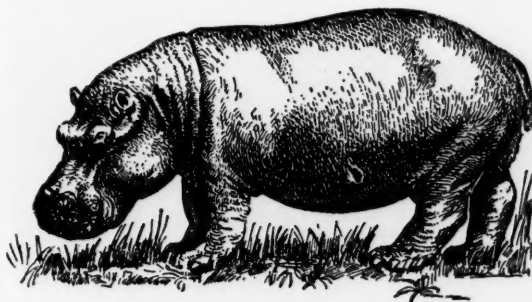
captain of Columbus' *Niña*, Vicente Yáñez Pinzón, but on a voyage of his own in 1500, that "was, of all western Europeans, the first to hold in his hand a marsupial animal and to discover the marsupial pouch." It was on the coast of Brazil, on the very voyage of that land's discovery. New lands, new animals! Pinzón took the mother possum back to Ferdinand and Isabella. But in the "Age of Credulity" which followed, descriptions of the animal rose to magnificently imaginative heights in the accounts of travelers and, even more, of whomever elaborated upon their stories. Their illustrations especially — the early ones are reproduced liberally in the book, constituting, with modern work, a virtual history of animal illustration from woodcut to photograph — show the power of invention in covering ignorance. As we may expect, the strange business of the pouch with its embryo sucklings aroused the greatest wonder and curiosity. The strangest fact of all is that it took four and a half centuries after Pinzón to discover in final detail what went on there. How were possums born? Dr. Hartman has written the last chapter of possum discovery. He has digested and abstracted for us the early accounts — we easily share his fascination. He summarizes recent research; and he of all men is best qualified to zipper the whole thing up, for once and all. You see, Dr. Carl G. Hartman was the first man to *observe* and record, in complete detail, the birth of baby opossums and their journey to the pouch.

Exploring Nature with Your Child: *An introduction to the enjoyment and understanding of nature.* By Dorothy Edwards Shuttlesworth. Greystone Press, New York. 1952. 448 pp., full-color frontis., 30 halftones, numerous line drawings. \$4.95.

We are glad to report on this book by the editor of *Junior Natural History Magazine* after having it put to the test of use. Two teachers of our acquaintance, who willingly tried it, have called it "truly wonderful" for its purpose, and the same can be said for its use at home. This is more than a book of facts about everything from snails to sunspots — it is also the long-needed guide to the "how" of answering the child's ceaseless and innumerable "whys." It is natural history for the teacher and teaching for the parent, nature wise or not.

The Golden Treasury of Natural History. By Bertha Morris Parker. Simon & Schuster, New York. 1952. 216 pp., profusely illustrated in full color. \$5.00.

This is one of those books that parents buy "for the children" because they cannot resist it themselves. The copy in our hands has sold six others, on sight — for the kids, of course! It is a veritable encyclopedia of "the birds and reptiles, fishes and insects, mammals, amphibians, plants



▲ Aldo Leopold. (Courtesy Oxford University Press)
➤ Hippopotamus. (Courtesy Greystone Press)

and trees, flowers and fruits that have inhabited the world as well as the minerals, fluids and gases of the earth itself and the suns, stars, and planets that surround it." Every one of the 8x11-inch pages is alive with the accurate full-color illustrations, which are mostly from the Row, Peterson "Basic Science Education Series" and the S. & S. Golden Nature Guides. The text is simple but happily free of writing-down or "cuteness" or oh-the-wonders-of-Nature stickiness. It is an altogether splendid book for the entire family from two up.

Green Treasury: A Journey Through the World's Great Nature Writing. With an Introduction and interpretive comments by Edwin Way Teale. Dodd, Mead & Company, New York. 1952. xxi + 615 pp., line drawings by Michael H. Bevans. \$5.00.

The evident popularity of nature writing just now may be a sign of the times — i.e., a form of recoil from the harshness of human events. On the other hand it could well be — we would rather think so — an expression of something deep in us that even harsh times cannot root out. The fact is, in any case, our foremost writing naturalists have an assured following — two generations have now looked forward to the next Beebe book, and still do; Peattie is a long established favorite; Krutch and Leopold have won their place on the peak; Teale, already on top as nature photographer, has burst into the front rank of writers.

It is with full authority, both as naturalist and as writer, that Edwin Way Teale has put before us his personal selections from the works of his predecessors and contemporaries in this peculiarly civilized kind of literature. *Green Treasury* covers twenty-two centuries, from *Ecclesiastes* to the living favorites mentioned above. In his sensitive Introduction the anthologist traces briefly the changing attitudes toward the natural world during that period, and shows why great nature writing is great literature, the record of some of the intensest and noblest of human experience. Every reader, we are certain, will find his own favorites here, but perhaps the greatest value of such a book is that, coming from one who has read more widely and expertly than the rest of us, it discovers new treasure

for us — writers little known if at all, others well known for a different kind of writing.

It is a pleasure to report another Teale, *Circle of the Seasons* (Dodd, Mead), which we shall review in a later issue.

DISCOVERY IN BOOKS

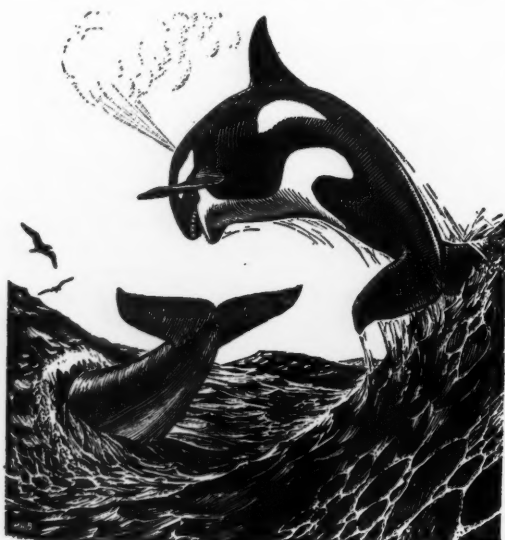
PACIFIC DISCOVERY was launched, old readers will recall, with a ship on its first cover, a five-master bearing away to the western horizon. With its present director an oceanographer, and with scientists on its staff who have logged many months at sea on various expeditions, this Academy has long operated on the sea as well as by it. The choice of our journal's name was perhaps not altogether unconsciously influenced by our nautical traditions as well as by our geodetic orientation. To landsmen there is magic in such titles as these:

Beyond Horizons: Voyages of Adventure and Discovery. By Carleton Mitchell. W. W. Norton & Company, Inc., New York. 1953. 312 pp., drawings by W. N. Wilson. \$3.95.

The three centuries from Columbus to Cook become almost incredible after the refresher on the details of their voyaging Carleton Mitchell provides in *Beyond Horizons*. A sailor himself — yachtsman, if you prefer — Mitchell was moved from gratitude to those pioneers whose work was done the hard way, thus enabling him to "sail confidently across charted seas," to curiosity as to what their logs and journals could tell him of how they lived — and died. The book that came out of his reading is a gripping picture of seagoing in the scurvy days, composed largely of extracts from original accounts: Walter's journal of the voyage round the Horn with Anson; a narrative of Tahiti's discovery, with Wallis; Bligh's journal of the amazing passage to Timor, and many others. Mitchell has selected and edited most carefully, preserving the essence but modernizing the English where it would gain clarity, shortening for the sake of speed. His own comments are interspersed; and he has composed chapters on the sailor's life (could any life have been harder?) and on the ships. The great voyages of discovery become both more real and more unbelievable after this book.

The Way of a Ship: Being some account of the ultimate development of the ocean-going square-rigged sailing vessel, and the manner of her handling, her voyage-making, her personnel, her economics, her performance, and her end. By Alan Villiers. Charles Scribner's Sons, New York. 1953. xiv + 429 pp., 84 photographs, mostly by the author, 39 maps, charts, and diagrams in line by Harold A. Underhill. \$6.50.

This remarkable and handsome book is the encyclopedia of sail its subtitle suggests; it is also an elegy and an epitaph. The square-rigged ship, Villiers says, came to its peak with the great steel vessels of the decade preceding World War I, and he explains fully why it was such five-masters as the German *Preussen* and *Potosi* that should be regarded as the ship's ultimate development, rather than the





hallowed clippers of the half-century before. He does this without detracting from the *Cutty Sark* (his biography of her takes three long chapters) and the glorious ships of her era. The bigger, later ships had not only the speed, they had capacity — they were economically sound and competed successfully for decades with steamers. They were magnificent engines for harnessing the free power of the world's winds.

We who are primarily interested in the history of discovery will find here an excellent brief account of the development of sea-going sailing vessels, a general account of global sailing conditions — the wind and current systems that alone made the roads to discovery in the great centuries of exploration after men burst the bounds of western Europe. Alan Villiers writes with the double authority of an objective scholar and a man who came up before the mast in sail and has had his own command. *The Way of a Ship* makes deepsea sailing completely understandable to a landsman without destroying the romance invariably clinging to it. And we are bound to share the author's regret that, save a very few school-ships, the square-rigger is as extinct as the dodo. Something splendid — and thoroughly sound — has passed from the world. It is extremely worthwhile to know well what it was.

Westward the course of discovery

PACIFIC DISCOVERY is fully satisfying as a title, to us, because it is so full and wide in implication as an idea. In the broadest meaning we like to think it compasses the whole tremendous story of New World discovery. Take the New World as the Western Hemisphere: look at any map of the hemispheres — does not the Western World comprise the Pacific with all its continental as well as insular borderlands?

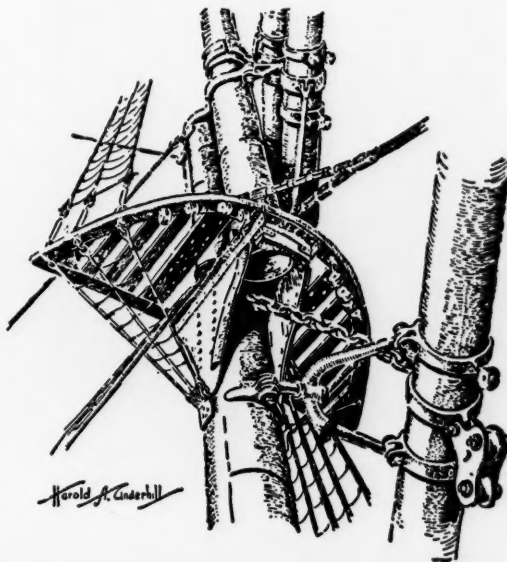
Two recent but timeless books have this in common: they begin with Columbus and the European obsession of a westward passage to the Indies. Their immediate divergence gives some idea how many ways one can jump from the same springboard. Bernard DeVoto is a student of American history; N. J. Berrill is a marine biologist. Each jumps according to his own obsession.

The Course of Empire. By Bernard DeVoto, with maps by Erwin Raisz. Houghton Mifflin Company, Boston. 1952. xvii + 647 pp., 33 text maps, 2 endpaper maps. \$6.00.

"We ever held it certain that going toward the sunset we would find what we desired." Thus Cabeza de Vaca in 1535, as Bernard DeVoto transcribes him. Columbus might have said it, in 1492, when only water lay between the Canaries and Cipangu. Or John Smith, in 1608, as he sailed up the Potomac "convinced that the Western Sea

lay just west of the mountain range whose piedmont he had seen. . . ." Or Champlain estimating "that at Montreal he was nine hundred miles from the Pacific." Or Alexander Mackenzie canoeing out of Lake Athabaska "for the Pacific Ocean." The Rockies turned him northward down the Mackenzie to the Arctic Sea — the Rockies, a barrier that "all thinking about the western crossing had been unable to conceive." Four years later, 1793, he forced the barrier and reached the Pacific north of Vancouver Island, the first to cross North America north of Mexico. Six weeks later Vancouver was making soundings in the same spot. The continent was being broached from the northwest — the previous year Gray had discovered the mouth of the Columbia and given Lewis and Clark a clearcut objective. By 1803 the Rockies were an established fact, though haziness as to details (the lay of ranges and rivers) gave Jefferson's explorers some trouble, nor did they have any idea of the length and breadth of the Pacific slope. By their return journey, Lewis and Clark had proved once and for all that North America could not be crossed, all the way, by boat! So there was no water passage after three centuries of seeking, but an empire had crossed a continent to fulfill its destiny. Two weary captains had found, where the sun sets, what they desired. "Clark . . . carved on a big pine the legend that says it all: 'William Clark December 3rd 1805. By land from the U. States in 1804 & 1805.'"

The *Course of Empire* is too vast a book to reduce to the impertinence of brief review. It is history reading like a novel, with generations of heroes — conquistadores, voyageurs, priests, brigands and all — hacking away at the unknown, the great mystery, turning Columbus' few sand cays into a continent, a continent whose western shore is always just beyond the next range of hills, just around the next bend in the river. Until hills turn into mountains and rivers turn into the wrong ocean. The antagonist is the geography of North America; water is the lure — the St. Lawrence, the Great Lakes, the wide Missouri; the Rockies are the hidden trap. And always there are the red men — "a dismaying amount of our history has been written without regard to the Indians. . . ." My narrative has had to deal with Indians throughout." Red and white, Mr. DeVoto's characters come intensely alive, and, living, make history a personal experience.



◀ Killer whale. (Michael H. Bevans, courtesy Dodd, Mead & Company) ▲ Ship of 16th century. (W. N. Wilson, courtesy W. W. Norton & Company, Inc.) ➤ Maintop of full-rigged ship. (Harold A. Underhill, courtesy Charles Scribner's Sons)

Journey Into Wonder. By N. J. Berrill. Dodd, Mead & Company, New York. 1952. xiv + 338 pp., chapter-head decorations by the author. \$4.00.

"The living universe which [we] see in this, our time, is something that has grown from a tale of high adventure, and this book is written for the enjoyment of reliving the gradual discovery of a new world." The history of new world discovery is also in a real sense the history of natural history. Its beginnings are also the beginnings of the big switch from belief merely in what has been handed down as true, to interest in what has been observed to be true. Experience, of course, as well as authority, had set the bounds. "Those of the caravel *Niña* reported that they had seen a tern and a boatswain bird, and these birds never go more than twenty-five leagues from land." What Columbus and his sailors didn't know — Dr. Berrill thinks "their hearts might have failed them" had they known at that point they were precisely in midocean — "was that tropic birds merely tolerate land for the brief two months it takes to raise their families. For the rest of the year they roam the tropical seas as far from land as it is possible to get and take the ocean for their own." That fact was not in the lore or — till then — the experience of those men and it was naturally misconstrued.

It is like sunlight breaking through fog, the gradual sharpening of the new look at the new world through the eyes of men willing and ready to accept wonder and make truth of it. For they were meeting wonder where it lived, and for what it was, not as something in books or in tavern tales. Columbus saw mermaids, "but not so beautiful as they are painted"; the sea cow was familiar to Dampier two centuries later; Humboldt dissected a manatee around 1800 on a branch of the Orinoco.

Time is the vehicle of Dr. Berrill's journey, the sea his highroad. The ships that Columbus squared away to west-

ward, from his own three caravels down to the *Beagle*, became instruments of discovery and of the increasingly objective appreciation of the natural world. John Hawkins and Drake, then Richard Hawkins, saw more than aids to navigation in the sea creatures. Dampier became a pirate the better "to see what lay over the hill," and wrote his *Discourse on Winds*. Georg Forster sailed with Cook and shed "a more critical light" on the world of wonder. Humboldt was the first of the great modern field naturalists, setting the pattern for scientific expeditions complete with instruments and technical know-how — and he inspired Darwin. That "indifferent student" read in South America's rocks the signs that led, when correctly interpreted, into the whole new wonder-world of past ages, while the insulated life on the Galápagos was to set going the trains of thought that led after 20 years to a theory of the origin of species through natural selection. How much wandering and wondering it took to arrive at Evolution, and how lately we have crossed that towering barrier range!

Dr. Berrill has sifted the great literature of exploration and put together the fragments of discovery of the natural world. His skillful synthesis is an epic of adventure and a saga of the advance of knowledge. It is also — for us — reading of the highest order of fascination.

An ocean to discover

THE INDIAN OCEAN might be called "the forgotten ocean," so absorbed are we with what goes on in and around the Pacific and across the Atlantic. That other great ocean (the Arctic has lately been demoted to sea rank) is better known to Westerners by four of its octopodian arms — Red Sea, Persian Gulf, Arabian Sea, Bay of Bengal (the gulfs of Aden and Oman and the Andaman and Timor seas would barely show in the quiz program handicaps). To be sure, the Indian Ocean figures more in human events by what goes on around it than in it. Arabia, Iran, India, Indonesia make headlines. We can recall some World II landings on Madagascar, and even perhaps associate that huge island with the Indian Ocean, but who ever heard of Réunion, Mauritius, or the Seychelles? They are not only very small islands but far off the tourist beat. Even Zanzibar is but a word to play on the ear for something romantic and remote. The inveterate armchair traveler, however, leaps to attention at hint of something rare. If you know one, chances are you can fill a geographical hiatus in his globe-covering shelfage with two recent books whose very titles breathe romance. Set sail for Songa Manara, Aldabra, and Mahé!

The Shoals of Capricorn. By F. D. Ommaney. Harcourt, Brace and Company, New York. 1952. 322 pp., 15 photographs, endpaper map. \$4.00.

It would be hard to name the interested reader for whom F. D. Ommaney, "a doctor of zoology" and a Londoner, has not written in this book which is as captivating as its title. Only a man himself possessing broad interests and outlook could have turned an account of a fisheries-investigation voyage to the reefs and banks of two offbeat British colonies into a first-class travel book, sociological study, historico-geographical résumé, personal adventure narra-



tive, deep-sea fishing yarn, and humorous but penetrating look at his fellow men. *The Shoals of Capricorn* is all of those, at least, without once going adrift in complexity.

His voyage from the Thames to the Cape to Port Louis, Mauritius, makes as racy an account of shipboard life as we've ever read.—"I do not know what there is that is always slightly alarming about quantities of parsons. . . . At first one feels a little on the defensive. Perhaps the pagan deities are not quite dead within us. . . ." Mr. Ommaney is not a *stuffy* savant. His shore-companions at ports of call were the ship's butcher, a Welsh fireman with a fine tenor, and an ex-policeman from Palestine — not the missionaries!

A six months' wait at Port Louis for the 45-ton Colonial Service fisheries drifter, delayed in fitting out, gave Ommaney the chance to absorb Mauritius' atmosphere, history, and more than an inkling of its human problems. This 38 by 29-mile volcanic island has 'em! Picture a British regime superimposed by conquest upon a well-intrenched feudal French colonial pattern of plantation economy complete with Negro slaves; a present social situation with French and British polite but not mixing; a vast colored majority illiterate and hungry, including a steadily rising preponderance of East Indians; and an economically aggressive Chinese minority, also growing — a total population of *half a million*, increasing daily! When Mauritius explodes, the world will hear from the Indian Ocean.

A leisurely voyage in an island schooner takes Dr. Ommaney at last to join the Motor Fishery Research Vessel *Cumulus* at Mahé, chief of the Seychelles Group's 92 tiny islands. Again, the vivid description and historical sketch, but from here on it is the story of life on the drifter — the mission, "to carry out a fishery survey over the shallow banks and shoals, which lie spread out in a submarine arc between the Seychelles and Mauritius" . . . to show as true or false "all those reports of teeming abundance of fish, which travelers had brought back from those seas," all having to do ultimately with food for Africa and even Europe. One of the best parts of the book, we think, is the account of a walk ashore on Aldabra, home of giant tortoises, and the epitome of "desert island."

With its wealth of information, anecdotes, and sympathetic human character studies, this is a good and completely fascinating book from every one of its many angles, historical, sociological, zoological, geographic.

Heaven Has Claws. By Adrian Conan Doyle. Random House, New York. 1953. 245 pp., 24 photographs, map. \$3.50.

Adrian Conan Doyle, son of Sherlock Holmes' creator, and his beautiful wife Anna, being apparently free of the mundane cares that beset most of us, and having wandered about postwar Europe "in a hopeless search for sanity and freedom," concluded that those elusive desirables lay waiting the finder "among the forgotten or the unexplored places of the world." Now Mr. Conan Doyle calls himself a zoölogist, and without consulting the record we grant he may be that. But he is also a game fisherman in the grand, or Wylie-Hemingway, manner, a fact not at all obscurely recorded in this book. If you know this you are not surprised that, finding nothing but the "futility of modern life" mirrored in his well-polished collection of

armor housed in the retreat in Tangier, he should take up "work" afield among those very islands somewhere between the Seychelles and Africa's east coast, an area not yet over-worked by his brethren of the heavy tackle. The Amirantes and "Aldebras" proving inaccessible, the couple, with their ten tons of fishing gear and supplies, secured and fitted out a 30-foot motor craft and explored the coastal islands and channels from Zanzibar south to Songa Manara, Tanganyika, on the western Indian Ocean.

This is a log of salt-water fishing, but there is much more to it than that. It is a story of bold adventure and exploration in what is certainly one of the farthest corners left in the world. A high point is the ruined and ancient palace in the island jungle of Songa Manara (a footnote says this has since been reached by an archeological expedition). The author writes at an almost frenetic pitch of sustained vividness, occasionally verges on heroics or swashbuckling, but nevertheless holds you in the grip of swift-moving events and the color of changing scene. Several pages of description of life in the coral lagoon of a "desert island" reach Beebe-esque heights for this kind of writing, as similar passages do, here and there. But he is savage in his admiring hatred of sharks.

They found their heaven of sorts, but saw the clawmarks of a lion and felt the stings of insects and rays. They considered it all worth while, and leave you glad to have adventured vicariously, while they discuss their next heaven — the Red Sea. Let's hope they write about it too.

The world of the East

POLITICS are considered beyond the scope of PD: people are not. It isn't easy these days to talk about people without getting involved somehow in politics. It is even harder to discuss people in one part of the world without mixing in their neighbors in another — the One World idea must be taking hold. Admitting that we must draw a line somewhere, we have, no doubt obviously, omitted Europe as an area of direct interest. (Europe as a locus of scientific history or as a springboard of discovery just as obviously cannot be left out.) But taking South America as Pacific borderland, can we jettison Brazil? Or taking Asia, must we stop at the Himalayas, or the Mekong? Since Leslie Simson bequeathed the Academy a perpetual interest in Africa, are we not bound to compass it? Then what of the Middle East and India? Mere logic demands their inclusion, as lying between Africa and Asia proper. From Southeast Asia down to Australia we declare ourselves on solid Pacific-washed ground.

Consider the books next mentioned as books about people, not as discussions of current political issues, and they will greatly clarify issues while enlarging your understanding of people. One of our most pressing obligations now is to get to know other people, of whatever kind, condition, or place.

World Without End: The Middle East. By Emil Lengyel. The John Day Company, New York. 1953. 374 pp., map. \$5.00.

Our look at Asia needs to be rounded off with a glance at the seething Middle East. A very penetrating inspection, indeed, is provided by Dr. Emil Lengyel, a recognized

authority on that always troubled world-crossroads area from the Libyan Desert to the Iranian Plateau. This cradle of Western civilization is truly a world without end of struggle between man and desert, between man and man, for existence. That struggle has always been in the background, and frequently in the foreground, of the perennial power-politics free-for-all involving religion, spheres of influence, imperial lifelines, the *Drang Nach Osten*, the Straits question, the Arab question, the Jewish question, nationalism, and oil. Geography is background for history and history is the actions of men. Dr. Lengyel peoples his stage like a skilled director. The mob is that formidable aggregate of human ciphers, the fellahin and tribesmen, whose degradation in poverty is beyond our comprehension. Principles are the Farouks, the Ataturks, the Ibn Sauds, the Lawrences, and the others who have spoken the lines and carried the action of the historical drama. Dr. Lengyel has an engaging, often racy, and always witty style that makes excellent reading of his kaleidoscopic story.

Three worlds, five fronts

Beyond the High Himalayas. By William O. Douglas. Doubleday & Company, Inc., Garden City, New York. 1952. 352 pp., 16 Kodachromes, 26 other photographs by the author, endpaper map. \$5.00.

North From Malaya: Adventure on Five Fronts. By William O. Douglas. Doubleday & Company, Inc., Garden City, New York. 1953. 352 pp., 36 photographs, endpaper maps. \$3.95.

Either of Justice Douglas' two most recent books could be read, and reviewed, simply as representing the very best in travel literature, *Beyond the High Himalayas* especially. But to do either would be to ignore Mr. Douglas' most urgent purpose in writing these books for his fellow Americans. William O. Douglas is as American as apple pie. Not only is the true meaning of America in him root and grain as in one of the great trees of his own Northwest, but it is his to give to all of us, from the bench or from these pages, in the clearest and simplest words. What he says can never be given two meanings. Some small souls have berated him snidely in public for gallivanting about the world instead of remaining glued to his seat in Washington. Whether Supreme Court justices are entitled to vacations like anybody is beside the point. The little men shun the noble idea of America, are afraid to have it carried abroad by clear-eyed and clear-voiced Americans such as Douglas, and are still more afraid of having people and events of other lands explained to us in its light. All honest and thinking Americans should be forever thankful that Justice Douglas has gone willingly into far places, often with much personal hardship and danger, to convey the best of America to their farmers and villagers, and to bring back to us a new and clearer look into their lives, their struggles, their hopes.

Just as a travel book, *Beyond the High Himalayas* leaves nothing to be desired. It takes us into one of the least known, most romantic to the imagination, most rugged and inaccessible corners of the world, the northwestern Himalayas on the threshold of Central Asia. It introduces us to Afghanistan — many will be surprised to learn that Afghans "are the most friendly and hospitable people . . . honest and trusting." We cross the blood-steeped Khyber Pass and

dine with the Wali of Swat, and we go over the Karakoram to the borders of Sinkiang. We lodge with lamas and greet armed Tibetan horsemen on the trail. Our guide is an experienced traveler and mountaineer, a tolerant, wise, and humorous man, who travels as a plain American and wins respect from the remotest tribesmen by his natural friendliness and courtesy, not by his exalted position.

The book has a more essential theme, however. "The northern stretch of India and the outposts of Pakistan that nestle in the Karakoram are . . . *one world*; the Communist regimes that lie to the north are a *second world*; we of the West, propelled by events so fast that we have little time to learn what we have done yesterday or where we are going tomorrow, are still a *third world*. It is the interplay of these *three worlds* that furnishes the underlying theme of the book." One chapter, "Communism vs. Buddhism," gives the background of a swift recent event that is already all but forgotten in the rush of subsequent events: the Communist conquest of Tibet. This chapter should dispel any "so what" attitude — Tibet may look unimportant to us, but it is part of the jigsaw pattern designed by "our real enemy. Soviet Communism, evil as it is, is not our important enemy. Our real enemy — our implacable enemy — is Soviet imperialism that uses Communism as its instrument for expansion."

How in Asia — military action has not proved the answer — can we most effectively fight Soviet imperialism? We can, we must turn back the spearhead of Communism by joining and aiding the revolt of the Asian *people* against the feudal conditions that make Communism seem to them a blessing, or at least the lesser evil.

That is also what Justice Douglas is telling us in *North From Malaya*. Here the pace is quickened. We are closer to what is more obviously concerning and affecting us, *now*. This is a book of adventuring travel, too — often dangerous travel by plane to the Korean front, by jeep into guerrilla territory with bullets whining across the road, in Indochina and Malaya. But this time Mr. Douglas had one purpose: to see at first hand the great conflict on five fronts in Asia between Communism and democracy, to dig out the facts behind each phase of it, and to bring those facts home to us in a way to make us reexamine our role in Asia. Most urgently, before it is too late, he wants to make us see where by backing the wrong leaders in certain places we are driving the people to Communism instead of to the democracy we profess to want for them in our own best interests as well as in what we proclaim to be theirs. If there is one book about the Far East every American should read *now*, it is *North From Malaya*.

The twain have met

Introducing Asia. By Lawrence H. Battistini. The John Day Company, New York. 1953. xiv + 289 pp., line drawings and maps. \$3.75.

The American Record in the Far East, 1945-1951. By Kenneth Scott Latourette. The Macmillan Company, New York. 1952. 208 pp. \$3.00.

At the slight risk of appearing to overemphasize Asia — as if that were possible at this point in history! — we recommend as scholarly guides to past and recent history Dr. Lawrence H. Battistini, lecturer in modern history at Sophia University, Tokyo, and Professor Kenneth Scott

Latourette, who holds a chair of Oriental History at Yale.

Introducing Asia summarizes readably the ancient as well as modern history of the continent, with emphasis on India, China, and Japan, but with many general considerations, as in the first chapter, "Lands, People, and Resources of Asia." The background of World War II, the war itself, and postwar events, especially the rise of Asian nationalism, are drawn in sufficient detail to establish a firm historical viewpoint. There are notes on the text, and a Selected Bibliography.

The American Record in the Far East, 1945-1951 "is not," says Professor Latourette, "intended for those who are expert on the Far East." It clearly is for the thoughtful American who wants to exercise intelligently his right to share through public opinion in the shaping of official policy and the determining of courses of action. It is to give him "the simplest and briefest possible" yet "comprehensive summary of the actions of his fellow citizens and especially of his government in Asia during these crucial years . . . after V-J Day."



Japan: Perry to MacArthur

EXACTLY one hundred years ago Commodore Matthew C. Perry, U.S.N., was engaged in the negotiations with Japan which opened that feudal country to world commerce, brought her into the "comity of nations," and led to her becoming a materially Westernized world power. Now the world is divided and Japan is again on the razor's edge of decision — will she go along with the West, or will she yield to Communist wooing and throw in with China, where her commercial ties are the strongest, and become once more the dominant power in Asia but under the Kremlin's shadow? There could be no better time for us to do some serious reading with a view to understanding how things have come to this pass — especially to understanding America's very large part in bringing affairs again to a crucial turning point.

▲ Commodore Perry meeting Imperial Commissioners, Yokohama.

➔ Street and entrance to chief temple, Simoda. (Courtesy Coward-McCann, Inc.)

Narrative of the Expedition of an American Squadron to the China Seas and Japan, under the command of Commodore M. C. Perry, United States Navy. Compiled at his request and under his supervision, by Francis L. Hawks, D.D., LL.D. Abridged and edited by Sidney Wallach. Coward McCann, Inc., New York. 1952. xxv + 305 pp., 10 black-and-white illustrations from contemporary drawings. \$5.00.

The narrative of Commodore Perry's mission to Japan a century ago, published 1856 by the Government "in three formidable volumes," may be, as the present publishers say, a "minor classic of American history." But in the acts it records America deliberately put a lever to history and shifted the course of the world, for better or worse, to a degree that could hardly have been anticipated. As we approach the centenary of the treaty that Commodore Perry, after skillful and determined negotiation, signed, with the Emperor's commissioners, on March 31, 1854, we are fortunate in having to read both for pleasure and instruction in the making of history Mr. Sidney Wallach's smooth abridgement of the official account.

In his Introduction the editor sketches the internal and external pressures affecting both countries that made the time ripe for America to put an end to Japan's 150-year-old isolationism. He brings out most clearly, however, the importance of Matthew Calbraith Perry as the "right man" to accomplish what others had failed to do. This reader, at least, cannot help seeing certain analogies with another American commander who entered Tokyo Bay to the intense discomfiture of Japanese officialdom. "He had a weakness for drama and a flair for it. There were times when his ego was overinflated and he appeared, to his associates at any rate, to be as much concerned with the Perry name as with the success of his mission. He liked bursting forth in glory: but at the same time had to have a compulsion to justify it — the best possible set of requirements for the negotiations with the Japanese Emperor. The role of an American counterpart to the Japanese Mikado gave him full scope for his sense of history, his vanity, and his pride of achievement. Here his course of action could always be justified as conforming to the peculiar requirements of his mission."

The narrative so carefully woven by Perry's selected spokesman, Dr. Hawks, clothes history with all the rich detail of daily events in the American squadron as it progressed from its first contact in Lew Chew (Okinawa) to the culmination of the mission in Yedo (Tokyo) Bay.



The Japanese dignitaries and functionaries are observed as individuals, and we are given a satisfying picture of Nipponese customs and character before the shotgun wedding with the West. The book has a compelling fascination in the light of later events, and is vital to their comprehension.

Journey by Junk: Japan After MacArthur. By Willard Price. The John Day Company, New York. 1953. 317 pp., 18 photographs by the author, sketch maps. \$4.50.

After reading Perry's *Narrative*, we suggest turning to Dr. Battistini's informative *Introducing Asia* (see review, this issue) for a compact résumé of events leading up to *Japan After MacArthur* and Willard Price's *Journey by Junk* for a close look along "Japan's economic and cultural Main Street," Seto Naikai, the Inland Sea.

Willard Price's journeys make capital travel-adventure reading, as many know. They are likely also to have a serious purpose behind them. This latest of Mr. and Mrs. Price's journeys have both adventure and purpose in full measure. Adventurewise, the near-descent into a whirlpool will raise your hackles, ditto near capture by polite but purposeful pirates. There is much robust humor — so glad to know what a *benjo* is (filed for future need). But the serious reason behind the six weeks island-hopping voyage within Japan's most intimate home waters, and what Mr. Price has to tell and warn us, are enough to make this "must" reading along with other Far East books we have mentioned in this issue. Granted that Mr. Price has betrayed in another recent book (*The Amazing Amazon*, to be reviewed) a tendency to take at face value some rather amazing figures quoted him (we refer to dimensions he gives for anacondas which don't stand up under checking with Ditmars), the fact that he has lived in Japan five years not counting various visits gives weight and credence to what he has to say on several important subjects. These are, among others: the Occupation, — there are some shocks here for those who basked in the rosy glow of MacArthur's carefully controlled releases; the Communist menace — Mr. Price has the gravest misgivings, in spite of recent assurances that that is diminishing to the point of little concern. Whatever we may believe, there is no question of Japan's continuing vital concern to Americans.

India: A Short Cultural History. By H. G. Rawlinson. Frederick A. Praeger, New York. 1952. xv + 454 pp., 24 halftone plates, 45 text figs., 12 maps. \$8.00.

"Today, when India is once more emerging, with that persistent vitality which has been her characteristic through the ages, from eclipse, it is more than ever incumbent upon us to realise the greatness of her past achievements in religion, politics, art and literature," H. G. Rawlinson, C.I.E., wrote in his Preface to the original edition (1937) of his *India*. He was addressing the "English people as a whole [who] have been singularly blind to the significance of India's contribution to world-culture." Whether or not we belong to the "English people as a whole" — this is not to say we must — we also might find it profitable, and an exciting experience, to open our eyes to India's rich heritage. At this very moment archeologists are digging out of the Indus River valley an ancient culture contemporaneous with the Mesopotamian cultures that have so aroused our interest within recent years. We who regard ourselves

the inheritors of Greco-Roman-Judaic culture, primarily, may find our cultural bases broadening considerably as influences from east of the Tigris become better understood. India's past, like her present and future (we mean the geographical, not the political, India), may be of increasing significance to the West. Rawlinson's book, therefore, assumes even greater importance in its new edition; Frederick A. Praeger has performed good service by bringing it to this side of the Atlantic.

For mapping discoveries

Collier's World Atlas and Gazetteer: Presenting the World in its geographical, physical and commercial aspects. Rand McNally Edition. P. F. Collier & Son: Division of the Crowell-Collier Publishing Company, New York. 1953. viii + 472 pp., multi-color maps, tables, charts, statistics, explanatory text, 266-page index-gazetteer, fully illustrated. \$17.50.

After so many pages of reviews emphasizing places and geographical relationships, it is only fair to include a reliable and up-to-date source of the statistical data needed in aid of informed reading — in short, a world atlas.

Colliers, a famous name in publishing, has long been associated with an encyclopedia; Rand McNally means maps to millions. With the two as co-publishers of a big new volume of world information, you may be sure the product is outstanding. The useful and attractive features of this large-format volume are too numerous to mention. The beautiful, clear maps — 119 pages — are those of the already famous new Rand McNally *Cosmopolitan World Atlas*. The Gazetteer-Index is a single alphabetical list of the more than 75,000 geographical names on the maps. Each map, moreover, has its own index of principal cities on its margin. If you were never exactly pleased with the appearance and clarity of your old Rand McNally's maps, you will be delighted at the completely new look of the genuinely new Cosmo Series. Colors are soft and clean, not garish yet bright, with deeper tones shading coastlines and boundaries. The small black townspots are a tremendous advance in clarity. All features are sharply differentiated, with type lettering clean and open.

Rand McNally World Guide: A concise illustrated encyclopedia of world places arranged by countries and continents. Selected and adapted from the *Columbia Lippincott Gazetteer of the World* by arrangement with Columbia University Press. Rand McNally & Company, Chicago, New York, San Francisco. 1953. ix + 726 pp., profusely illustrated with photographs, city plans, full-color endpaper maps of World and U. S. \$6.95.

Of about the size and weight of *Webster's New Collegiate Dictionary* or *Webster's Geographical Dictionary*, the new *Rand McNally World Guide* is a very useful addition to your handy desk or home reference books. Although the world atlas reviewed above and similar large format atlases contain much of the same kind of information in text and pictures, by dispensing with the maps the smaller and lighter book makes for easier access to more complete descriptive information about places. The Columbia and Rand McNally names assure reliability — spot checking "California" catches but few errors: e.g., *Range* affixed to Sierra Nevada; redwood belt extending from north of San Francisco. D.G.K.

BIBLIO MISCELLANY

Acacia to Zostera

Plants of the Bible. By Harold N. Moldenke and Alma L. Moldenke. The Chronica Botanica Company, Waltham; J. W. Stacey, Inc., San Francisco. 1952. xx + 364 pp., 95 figures in line and halftone, numerous decorations in line. \$7.50.

Dr. Harold N. Moldenke, curator and administrator of the Herbarium, New York Botanical Garden, and his wife, Alma L. Moldenke of the biology department of Evander Childs High School, have collaborated over a period of twelve years on a scholarly "résumé of present day knowledge of Biblical botany." The handsome book thus produced will not only stand on every shelf of primary Bible reference works in libraries and — we may hope — become well used by every priest, minister, and rabbi who would deal informatively with Testament material. It should be prized also by every layman who reads and studies the Bible with a mind open to the manifold riches it keeps hidden to the dark light of literalism. And every professional botanist called on to answer authoritatively the public's questions should keep it at his elbow.



From *Acacia to Zostera* 242 species are fully described and annotated. Even unidentified plant references are given, thus forestalling charges of omission. The bibliography contains 605 references, the index is truly exhaustive. The illustrations include modern photographs from Palestine as well as woodcuts from old missals, Renaissance engravings, famous paintings, and vignettes from quaint Victorian travel books. *Plants of the Bible* is Volume XXVIII of A New Series of Plant Science Books, edited by Dr. Frans Verdoorn of Chronica Botanica.

Indian Legends of the Pacific Northwest. By Ella E. Clark. Illustrated by Robert Bruce Inverarity. University of California Press, Berkeley and Los Angeles. 1953. x + 225 pp., line drawings, decorations, maps. \$4.50.

It is our particular pleasure to note, on occasion, a book by one of our own staff or contributors. Ella E. Clark, a professor of English at Washington State College, wrote about the "Smokejumpers" for *PD*. Spending her summers in lonely mountain-top fire lookout posts has allowed her



time to look deeply into several aspects of her beloved Northwest — its wildflowers and mountain scenes, its exploration, perhaps most of all its Indian inhabitants. Fortunately for all who would keep their cultural heritage alive, she has had the patience and scholarship to collect from various sources including living Indians, sift, organize, and put into the simplest and clearest English over a hundred tribal tales. When the last story has been told by the last Indian campfire, the record of a people's mythology will remain permanently available in this beautifully designed book. We may be sure Miss Clark has performed this labor of devotion out of full respect for the originators of her material.

The Dragon in New Albion. By S. H. Paxton. Little, Brown & Company, Boston. 1953. 213 pp., line drawings by John C. Wonsetler. \$2.75.

Pacific Discovery does not review fiction (unless Sally Carrighar's books are so classed), but coming on the heels of the recent Drakes Bay article (*PD*, July-August 1953), *The Dragon in New Albion*, S. H. Paxton's new novel for younger readers, deserves to be made an exception. Mr. Paxton has written a rousing good adventure story based upon the record of Drake's probable landing on the shores of Marin County near San Francisco. As any good novelist is expected to do, the author has let his imagination play freely with the known facts. Without distracting the reader from the story or otherwise annoying him, Mr. Paxton has maintained constant awareness of what is from the record and what is his own artifice. Occasionally he does this with footnotes, secure in the knowledge that what is known about Drake is already tinged with romance.

Young and old alike will enjoy sharing young Harry Foulke's adventures after he "deserts" Drake to outwit a traitor to the English Crown and is left among the Indians as Her Majesty's viceroy. The reader who has hiked and explored through Marin will take particular delight in seeing familiar landmarks through the eyes of Harry and his Miwok companions. The book should stimulate the young reader who might have found textbook history a bit dry.

MARION R. KELLEY

Art in the Ice Age: Spanish Levant Art; Arctic Art. Johannes Maringer and Hans-Georg Bandi in execution of a plan by Hugo Obermaier. Frederick A. Praeger, New York. 1953. 167 pp., profusely illustrated in line, halftone, and full color, endpaper maps. \$12.50.

One of the most beautiful and fascinating books of the year. *PD*'s review will appear editorially in an early issue. This is one not to miss, scientific, and an art book of the first order.

▲ "The angel Gabriel, bearing a Madonna lily," and the Annunciation to Mary. (Missale Romanum, 1499; courtesy Metropolitan Museum of Art and The Chronica Botanica Company) Right, above: Northwest Indian mythical design representing thunderbird, whale, and snake. (Courtesy University of California Press)

"Up and Down California"

IN THE REVIEWS for January-February 1952 we noted the first four of the Early California Travels Series that Glen Dawson of Los Angeles is publishing. We expressed the "hope for many more" of these extremely attractive little books in which early records are being brought out of the limbo of journals, newspapers, manuscripts, and other non-accessible places, into available book form. Glen Dawson is a thoroughgoing student and collector of Western Americana — his selective judgment assures the worth of the items going into the Series. The listing below brings us up to date on the published numbers:

Early California Travels Series. Glen Dawson: Los Angeles, 1952-1953.

V. **Observations on the Inhabitants of California, 1827-1828.** By Paolo Emilio Botta. Translated by John Francis Bricca. 1952. 20 pp., 4 illustrations. Out of print.

VI. **Land of Fiction: Thirty-two novels and stories about Southern California from Ramona to The Loved One: a bibliographical essay.** By Lawrence Clark Powell. 1952. xiv + 48 pp. Out of print.

VII. **Father Kino at La Paz, April 1683.** A translation of the *Relación Puntual* by Charles N. Rudkin. 1952. 37 pp. Out of print.

VIII. **The Indians of Los Angeles: Story of the liquidation of a people.** By W. W. Robinson. 1952. 43 pp. Out of print.

IX. **Vancouver in California, 1792-1794: The original account of George Vancouver.** Edited and annotated by Marguerite Eyer Wilbur. Volume I. 1953. xiv + 128 pp. \$5.00.

X. In preparation: Volume II of *Vancouver in California*.

XI. **An Ascent of Mount Shasta: 1856.** By A. C. Isaacs. Introduction by Francis P. Farquhar. 1952. 22 pp. Out of print.

XII. **The Books of the Colorado River & the Grand Canyon: A selective bibliography.** By Francis P. Farquhar. 1953. xi + 75 pp. \$5.00.

XIII. **Sketches in California, 1836.** By W. S. W. Ruschenberger, M.D. Introduction by John Haskell Kemble. 1953. \$5.00.

XIV. **Antoine Robidoux, 1794-1860: A biography of a Western venturer.** By William Swilling Wallace. 1953. x + 59 pp. \$5.00.

XV. **Ferdinand Deppe's Travels in California in 1837.** Translated from the German by Gustave O. Arlt. 1953. xiii + 27 pp. Out of print.

XVI. **Statement of My Captivity Among the Californians.** By Vassili Petrovitch Tarakanoff. Written down by Ivan Shishkin, & translated from the Russian by Ivan Petroff, with Notes by Arthur Woodward. 1953. 47 pp. \$5.00.

XVII. **A Pioneer of Pioneers: Narrative of adventures thro' Alabama, Florida, New Mexico, Oregon, California, &c.** By Joel P. Walker. 1953. 20 pp. Out of print.

At last report from Glen Dawson, the first eight of the Series were out of print. To continue our previous listing

and keep the bibliographical sequence intact, however, we thought it worth while to include the "out of print" with those still available as we go to press (of these, some may be allotted to Series subscribers only; Glen Dawson's November news letter says that extra copies of XII and XIV are available, and this should go for the *Vancouver*, we think). If you want any item or wish to subscribe, you are urged to write immediately to Glen Dawson, 550 South Figueroa Street, Los Angeles 17, California (not an advertisement!). We expect to note some of these books in more detail in the next issue of *PD*. They are commendable examples of Pacific Coast publishing and printing.

Late flash: One or two sets, IX to XVII, are on hand at Dawson's Book Shop at \$3.75 per volume.

The abundant . . .

A Herd of Mule Deer. By Jean M. Linsdale and P. Quentin Tomich. University of California Press, Berkeley and Los Angeles. 1953. xiii + 567 pp., 174 figures. \$8.50.

This work is the result of thirteen years of nearly continuous observation on deer living within the confines of the Frances Simes Hastings Natural History Reservation in Monterey County, California. The reader will be confronted with a wealth of information relating to these animals although it must be pointed out that the absence of either a general summary or summations of the contents of chapters detracts from its usefulness as a ready reference. This, however, is not the purpose of this book. The authors have conscientiously recorded in extreme detail everything relating to the environment inhabited by deer, the behavior of deer themselves, and the behavior of other forms of animal life that are directly or indirectly associated with deer. Although it is explained that the facts presented relate only to those animals observed on this natural history reservation, where the influence of man is reduced to a minimum, many general conclusions could be drawn bearing on the natural history of the mule deer as a species.

R.T.O.

. . . and the scarce

The California Condor. By Carl B. Koford. Research Report No. 4, National Audubon Society, New York. (The Dartmouth Printing Company, Hanover, New Hampshire.) 1953. xii + 154 pp., colored frontispiece, 31 plates, 15 figures. Paper, \$3.00.

This admirable report should be of interest not only to ornithologists but to all who profess to be conservationists. It is a field study of a species whose population is presently so low (estimated by the author at 60) that it balances perilously on the verge of extinction. Its fate is dependent upon man and his interest, or lack thereof, in preserving the largest flying land bird now existing in North America. Although it is problematical whether or not the condor will be seen in life by future generations, nevertheless an accurate and carefully documented account of its habits and behavior will be available to all. Dr. Koford is to be highly commended for completing this study on a species whose habits as well as habitat are such as to make natural history observations very difficult. This project was supported by the National Audubon Society and the University of California.

R.T.O.

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Errata

January-February 1953—page 1 (IN THIS ISSUE): FOR 15 READ 14.

March-April 1953—page 15: FOR *Paleontology* READ *Geology*. This was not an error—since that issue was published the department has been renamed! Curator: Dr. G. Dallas Hanna. Associate Curator: Dr. Leo G. Hertlein.

September-October 1953—page 5 (under "Archaeology"): FOR American Institute of Archaeology READ Archaeological Institute of America. *Apologies to the Institute for our failure to check a reference.*

Page 12: FOR John (Erickson) READ Jon.

Page 12 (footnote): The article referred to, by William Y. Adams, will not appear in *American Antiquity*. This erroneous reference is due to a misunderstanding.

Page 18: The photo is by Nat McKelvey. Apologies to Mr. McKelvey for assuming that all the photos were by his friend Tad Nichols.

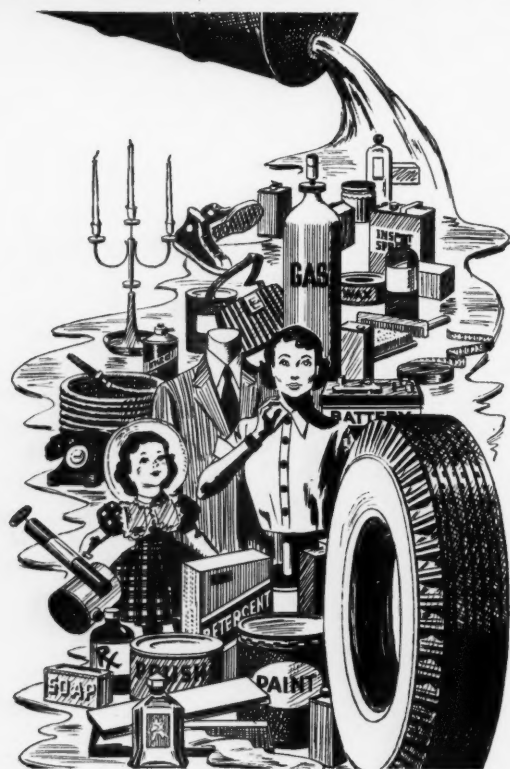
For other errors not discovered or reported—no apologies!

Reviews Pending: A Partial List

REVIEWS OF BOOKS listed below will appear as space and/or editorial plans permit. Some are being held for special issues, some for editorial discussion or review under topical headings; others were just lately received.

- Adam in Ochre: Inside Aboriginal Australia.** By Colin Simpson. Angus & Robertson, Sydney and London. 1952. Frederick A. Praeger, New York. 1953. 221 pp., illus. 25s. \$5.00.
- Annapurna: First conquest of an 8000-meter peak.** By Maurice Herzog. E. P. Dutton & Co., Inc., New York. 1953. 316 pp., illus. \$5.00.
- Art, Form, and Civilization.** By Ernest Mundt. University of California Press, Berkeley and Los Angeles. 1952. ix + 246 pp., illus. \$3.75.
- Balboa of Darien: Discoverer of the Pacific.** By Kathleen Romoli. Doubleday & Company, Inc., New York. 1953. xi + 431 pp. \$5.00.
- The Best of Two Worlds.** By Joseph Wood Krutch. William Sloane Associates, New York. 1953. 171 pp., illus. \$3.00.
- Big Bend: A homesteader's story.** By J. O. Langford with Fred Gipson. University of Texas Press, Austin. 1952. viii + 159 pp., illus. \$3.50.
- Brown Men and Red Sand: Journeyings in Wild Australia.** By Charles P. Mountford. Frederick A. Praeger, New York. 1952. xv + 184 pp., illus. \$4.50.
- California.** By John Walton Caughey. Second Edition. Prentice-Hall, Inc., New York. 1953. xii + 666 pp., illus. \$9.00.
- Cape Horn.** By Felix Riesenbergh. Dodd, Mead & Company, New York. 1951. xv + 452 pp., illus. \$5.00.
- Dialogue Concerning the Two Chief World Systems—Ptolemaic and Copernican.** By Galileo Galilei. Translated by Stillman Drake. Foreword by Albert Einstein. University of California Press, Berkeley and Los Angeles. 1953. xxvii + 496 pp. \$10.00.
- From Fish to Philosopher.** By Homer W. Smith. Little, Brown and Company, Boston. 1953. xv + 264 pp., illus. \$4.00.
- The Earth's Crust.** By L. Dudley Stamp. Crown Publishers, Inc., New York. 1953. viii + 120 pp., illus. incl. many in color. \$5.00.
- Exploration of the Valley of the Amazon.** By William Lewis Herndon. McGraw-Hill Book Company, Inc., New York. 1952. xxviii + 201 pp., illus. \$3.75.
- Free and Unequal: The biological basis of individual liberty.** By Roger J. Williams. University of Texas Press, Austin. 1953. xiii + 177 pp. \$3.50.
- A Guide to the History of Science.** By George Sarton. The Chronica Botanica Company, Waltham; J. W. Stacey, Inc., San Francisco. 1952. xviii + 316 pp. \$7.50.
- I Drank the Zambezi.** By Arthur Loveridge. Harper & Brothers, New York. 1953. xiv + 296 pp., illus. \$4.00.
- Insects Close Up.** By Edward S. Ross. Published for the California Academy of Sciences by the University of California Press, Berkeley and Los Angeles. 1953. 80 pp., illus. Paper, \$1.50.
- Land and People in the Philippines.** By J. E. Spencer. University of California Press, Berkeley and Los Angeles. 1952. xviii + 282 pp., illus. \$4.50.
- Lands Beyond.** By L. Sprague de Camp and Willy Ley. Rinehart & Co., Inc., New York. 1952. 338 pp., illus. \$4.75.
- The Limits of the Earth.** By Fairfield Osborn. Little, Brown and Company, Boston. 1953. x + 238 pp. \$3.50.
- The Lost Discovery: Uncovering the track of the Vikings in America.** By Frederick J. Pohl. W. W. Norton & Company, Inc., New York. 1952. 346 pp., illus. \$3.75.
- Lost Trails, Lost Cities.** By Col. P. H. Fawcett. Funk & Wagnalls Company, New York. 1953. xvi + 332 pp., illus. \$5.00.
- Man and His Physical Universe.** By Richard Wistar. John Wiley & Sons, Inc., New York. 1953. xv + 488 pp., illus. \$4.75.
- Manta: Under the Red Sea with spear and camera.** By Hans Hass. Rand McNally & Company, Chicago. 1953. 278 pp., illus. \$4.50.
- Man, Time, and Fossils: The story of evolution.** By Ruth Moore. Alfred A. Knopf, New York. 1953. xvii + 411 + xiii pp., illus. \$5.75.
- The Nature of Natural History.** By Marston Bates. Charles Scribner's Sons, New York. 1950. 309 pp. \$3.50.
- The Origins of Art.** By Gene Weltfish. The Bobbs-Merrill Company, Inc., Indianapolis and New York. 1953. 300 pp., illus. \$4.50.
- Plants, Man and Life.** By Edgar Anderson. Little, Brown & Company, Boston. 1952. 245 pp., illus. \$4.00.
- Problems of Life: An evaluation of modern biological thought.** By Ludwig von Bertalanffy. John Wiley & Sons, Inc., New York. 1952. xi + 216 pp. \$4.00.
- The Sex Life of Wild Animals.** By Eugene Burns. Rinehart & Company, Inc., New York. 1953. xiii + 290 pp. \$3.00.
- The Silent World.** By Captain J. Y. Cousteau with Frédéric Dumas. Harper & Brothers, New York. 1953. xiv + 266 pp., illus. \$4.00.
- Tahiti: Voyage through Paradise.** By George T. Eggleston. The Devin-Adair Company, New York. 1953. 252 pp., illus. \$6.00.
- Tusitala of the South Seas: The story of Robert Louis Stevenson's life in the South Pacific.** By Joseph W. Ellison. Hastings House, New York. 1953. xvi + 297 pp., endpaper illus. \$5.00.
- Unseen Life of New York, as a naturalist sees it.** By William Beebe. Duell, Sloan and Pearce, New York; Little, Brown and Company, Boston. xiii + 165 pp., illus. \$4.00.
- Wagon Roads West.** By W. Turrentine Jackson. University of California Press, Berkeley and Los Angeles. 1952. xv + 422 pp., maps. \$5.00.
- The Way of the World.** By George H. T. Kimble. George Grady Press, New York. 1953. x + 123 pp. \$2.50.
- Where Winter Never Comes: A study of man and nature in the tropics.** By Marston Bates. Charles Scribner's Sons, New York. 1952. 310 pp., illus. \$3.50.
- The Wonderful World of Insects.** By Albro T. Gaul. Rinehart & Company, Inc., New York. 1953. 290 pp., illus. \$4.00.

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